NOTE TO USERS

This reproduction is the best copy available.

UMI®

University of Alberta

Organizational Leadership for Health Promotion by Health Authorities

by

©

Linda Louise Clarahan Barrett

A thesis submitted to the Faculty of Graduate Studies and Research in partial
fulfillment of the requirements for the degree of MASTER OF SCIENCE.

Centre for Health Promotion Studies

Edmonton, Alberta

Spring, 2003

National Library
of Canada

Acquisitions and
Bibliographic Services

395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque nationale
du Canada

Acquisitions et
services bibliographiques

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence

Our file Notre référence

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-82264-8

Canada

University of Alberta

Library Release Form

Name of Author: Linda Louise Clarahan Barrett

Title of Thesis: Organizational Leadership for Health Promotion by Health Authorities

Degree: Master of Science

Year this Degree Granted: 2003

Permission is hereby granted to the University of Alberta Library to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only.

The author reserves all other publication and other rights in association with the copyright in the thesis, and except as herein before provided, neither the thesis nor any substantial portion thereof may be printed or otherwise reproduced in any material form whatever without the author's prior written permission.

Linda L. Barrett

January 30, 2003

10216 – 71 Street
Edmonton, Alberta
Canada
T6A 2V8

University of Alberta

Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled ORGANIZATIONAL LEADERSHIP FOR HEALTH PROMOTION BY HEALTH AUTHORITIES submitted by LINDA LOUISE CLARAHAN BARRETT in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE.

R Plotnikoff

Ron Plotnikoff, Ph.D.
Co-Supervisor

Kim Raine

Kim Raine, Ph.D., R.D.
Co-Supervisor

Karen Golden-Biddle

Karen Golden-Biddle, Ph.D.
Committee Member

January 29, 2003

Helen M. Madill, Ph.D.
Graduate Programs Coordinator

ABSTRACT

The overall purpose of this thesis was to develop robust psychometric measures of "Organizational leadership for health promotion" and to then examine their relationship to regional health authority (RHA) actions for health promotion (HP) and heart health promotion (HHP). Two sequential studies were conducted on the baseline dataset (n=144) of the Alberta Heart Health Project-Dissemination Phase. The first provided evidence of the construct validity and reliability of four leadership components. The second study found that these leadership components of "Practices for organizational learning", "Wellness planning", "Workplace milieu", and "Organization member development" in addition to the presence of a "Champion for HHP" had significant ($p<.05$) positive associations with RHA actions for HP/HHP. As well, board members rated the leadership measures significantly ($p<.05$) higher than middle/senior managers and service providers across all 17 RHAs. Implications for these research findings, study limitations, suggested research directions and recommendations for HP policy, practice and education are outlined.

ACKNOWLEDGEMENTS

I would like to acknowledge my co-supervisors, Dr. Ron Plotnikoff and Dr. Kim Raine, for their *exceptional* support and guidance throughout this thesis writing process. I benefited greatly from their divergent but complementary perspectives in guiding my research on the complex topic of organizational leadership for health promotion. I would also like to acknowledge Dr. Karen Golden-Biddle from the School of Business for her valuable input and assistance as the external member of my thesis committee. As well, many thanks to Dr. Helen Madill for her able participation as chair in the oral defense process.

In addition, I would like to recognize the team members of the Alberta Heart Health Project: Dissemination Phase, in particular, Dr. Donna Anderson who provided very helpful assistance during the psychometric portion of the research.

Finally, I wish to thank my family and friends for their untiring and faithful belief in me throughout this journey. Their steadfastness was much appreciated.

DEDICATION

This thesis is dedicated to my mother, Ellen Clarahan, and my father, Larry Clarahan, whose solid expectations for and appreciation of the value of education have instilled in me a life long passion for learning. And especially to my children David and Lisa, who in their adult journeys, continue to contribute great joy and learning to my life.

Title: Organizational Leadership for Health Promotion by Health Authorities

Page

1. **Introduction**
   - 1.1 Overview of the Chapter 2
   - 1.2 Introduction 2
   - 1.3 Theoretical Overview
     - 1.3.1 Overview of Leadership Theory and Research 4
     - 1.3.2 Health Promotion (HP) and Heart Health Promotion 6
     - 1.3.3 Organizational Learning and Change 8
     - 1.3.4 Differences in Organizational Perspectives 11
   - 1.4 Leadership and Building Organizational Capacity for HP
     - 1.4.1 Study Background 13
     - 1.4.2 The Alberta Model 14
     - 1.4.3 Process of Capacity Building and Leadership 15
     - 1.4.4 Defining Organizational Leadership for Health Promotion 16
   - 1.5 The RHA Dilemma and Opportunity 17
   - 1.6 Overall Rationale for the Study 19
   - 1.7 Research Aims
     - 1.7.1 Aim One 20
     - 1.7.2 Aim Two 20
     - 1.7.3 Aim Three 21
     - 1.7.4 Subsidiary Question 21
   - 1.8 Plan of the Thesis 22

2. **Paper One** 23
   "Development of Measures of Organizational Leadership for Health Promotion"

3. **Paper Two** 60
   "Organizational Leadership and Its Relationship to Regional Health Authority Actions to Promote Health"

4. **Discussion** 112
   - 4.1 Main Conclusions 113
   - 4.2 Key Study Limitations 115
   - 4.3 Future Research Directions 115
   - 4.4 Recommendations for HP Policy, Practice and Education 118

Appendices

Appendix I – Review of the Literature 125
I.1 Overview of the Chapter 126
I.2 Introduction 126
I.3 Contextual Information 126
  I.3.1 Health Promotion and Heart Health Promotion 127
  I.3.2 Initiatives Related to Population Health Promotion 128
  I.3.3 The Alberta Model 136
  I.3.4 Leadership Challenge in Building Capacity for Health Promotion 136
  I.3.5 RHA Mandate and Dilemma on Health Promotion 138
I.4 Overview of Theories Related to Leadership 140
  I.4.1 Leadership Theory 140
  I.4.2 Organizational Change Theory 147
    I.4.2.1 The Learning Organization 150
    I.4.2.2 Political Aspects of Change 154
    I.4.2.3 Organizational Culture 157
  I.4.3 Levels of Membership in Health Organizations 159
I.5 Defining Organizational Leadership for Health Promotion 162
I.6 Summary of the Review 163

Appendix II – Methods 166
II.1 Overview of the Chapter 167
II.2 Research Ethics Approval 167
II.3 Instrument Development 167
II.4 Participants 169
II.5 Study Aim One 170
II.6 Study Aim Two
  II.6.1 Research Question #1 173
  II.6.2 Research Question #2 174
II.7 Study Aim Three
  II.7.1 Variables 176
  II.7.2 Data Screening 178
  II.7.3 Path Models and Multiple Linear Regression 180
II.8 Subsidiary Question 183

Appendix III – References 185

Appendix IV – Research Ethics Approval 200

Appendix V – Questionnaire 203

CHAPTER ONE

INTRODUCTION

CHAPTER ONE — INTRODUCTION

1.1 Overview of the Chapter

This chapter provides valuable contextual information on the essential conceptual underpinnings of this thesis on organizational leadership for health promotion by regional health authorities. While a more in-depth review of the literature is offered in Appendix I, here the reader is provided a broad base from which to understand the complex issues addressed through two independent manuscripts per the mixed format plan of the thesis. Key topics introduced include organizational leadership, health promotion, heart health promotion, and related areas such as organizational levels, learning, and change. Also provided is study background information as part of the Alberta Heart Health Project-Dissemination Phase, as well as leadership challenges for regional health authorities in Alberta, Canada in relation to health promotion. The chapter concludes by presenting a definition for collective organizational leadership for health promotion, rationale for the study in the context of the issues raised, the research aims and questions as well as an outline of the overall plan of the thesis.

1.2 Introduction

Leadership, by jurisdictions with accountability for addressing community-wide health issues, is essential for the overall health of the population. Furthermore, leadership is vital in efforts to reduce the widespread impact of cardiovascular disease (CVD), the leading global cause of mortality, as well as other non-communicable diseases (The Singapore Declaration, as described in Pearson et al., 1998; World Health Organization, 1992 and 2002). For example, within the province of Alberta, Canada, CVD is the leading cause of mortality and a recent study revealed that more than half of the population was at elevated risk of developing CVD (Alberta Health, 1997).

To decrease such widespread health problems, international and national heart health experts have advocated for societal changes at the socio-environmental level, beyond individual lifestyle, as key to sustain effective action on these issues (Pearson

Shankle Bales, Blair, Emmanuel, Farquhar, Low, MacGregor, MacLean, O'Connor, Pardell & Petrasovits, 1998; Pipe, 1995). Moreover, leadership at the local level is considered paramount in the development and sustenance of community norms that promote healthy, and discourage, unhealthy behaviours over the lifespan (Hancock, 1993; Minkler, 1998; Plotnikoff, Williams & Fein, 1999). In Canada, the creation of health regions as a key feature of Canadian health system restructuring in the 1990's, has produced an opportunity for more concerted and collaborative efforts at the local level to improve overall community health.

Given the local accountability for population health promotion within the regional health authority (RHA) structure of the province of Alberta, the RHAs have mandated leadership roles in efforts to reduce the burden of CVD across Albertan communities. To illustrate, the first accountability listed in the Regional Health Authority Act of 1994, which divided Alberta into 17 geographic health regions, is "promoting and protecting the health of the population in the region" (Alberta Health, 2002). Hence, in addressing the CVD issue at a community-wide level, the organizational capacity of each RHA for action on health promotion (HP) and heart health promotion (HHP) is vital. Furthermore, understanding organizational leadership and its relationship to RHA capacity for HP/HHP action is important to the development of effective efforts to reduce the impact of this major health issue.

Research on leadership for health promotion at an organizational level by jurisdictions with such accountability (i.e., Alberta RHAs) is therefore an area of study that could make an important contribution to the advancement of knowledge on improving the health of communities. The following section presents an overview of conceptualizations related to the major elements of the current study on such leadership. It highlights relevant leadership theory and research, defines established notions related to health promotion and heart health promotion, describes germane aspects of organizational learning and change, and outlines several frameworks relative to member perspectives at different organizational levels. (see Appendix I for a more in-depth review of the literature.)

1.3 Theoretical Overview

1.3.1 Overview of Leadership Theory and Research

Over the past century, numerous conceptualizations of leadership have been proposed. Some academics classify the earlier trait, behavioural, contingency, transactional, or two-factor theories as taking a rationalized approach to the leader-subordinate interface. This is compared to more recent charismatic, transformational, and the new leadership theories, which are seen as focusing on leader interpersonal influences on followers (Boal & Hooijberg, 2000). That is, in contrast with earlier approaches, these later theories focus on the role of the leader in creating meaning for followers through hierarchical leader influence vis-à-vis effect on organization members' values, knowledge and emotions. Thus, typically leadership theories have defined the construct of leadership in terms of the behaviour of an individual leader with the effects measured at the small group or dyadic level of analysis (Walman & Yammarino, 1999; Yukl, 1999). For example, charismatic leadership has largely focused on the personal characteristics of leaders, such as ability to inspire followers (Bass, 1985).

However, leadership is also concerned with how to influence group functioning, organizational culture, and change within multi-faceted, ever expanding internal and external environmental complexity (Bass, 2000; Yukl, 1999). Organizations today require a broader conceptual base in order to deal strategically with large-scale change and globalization. Thus, a multi-dimensional approach to leadership is recommended. For example, recent literature suggests that the development of leadership teams will be key to long-term organizational success. By establishing deep interconnections throughout the organization, leadership teams are seen to enable the creation of an empowering organizational environment and the operationalization of the shared vision (Herb, Leslie & Price, 2001; Krishman & Park, 1998).

Some researchers have called for expansion of the conceptualization of leadership beyond the leader-follower dyad and the small group levels of analyses (Gronn, 1999; Walman & Yammarino, 1999; Yukl, 1999). Moreover, several authors posit that no one individual leadership theory will be able to capture the complexity of current organizations (Marion & Uhl-Bien, 2002; Yukl, 1999).

Indeed, most recently emerging notions propose that, in order to build the leadership competence required for organizational learning and thus goal attainment, approaches are needed which involve both the development of 1) individual hierarchical leadership and 2) collective organizational leadership, linked with each other to a broader organizational strategy (Day, 2001; Hall & Seibert, 1992; Latham & Seijts, 1998). Collective organizational leadership is thus seen as distributed across levels, including informal and formal roles, hence becoming leadership *in* the organization contrasted with leadership *of* the organization at a strategic or executive level (Boal & Hooijberg, 2000; Gronn, 2002). Moreover, these most recent conceptualizations shift the focus on investigation—from a preoccupation with the leader-follower interface—to a broader focus on interpersonal processes across the organization, which are then seen as influencing actions for goal attainment across the organization, (Day, 2001; Nirenberg, 2001; Yukl & Van Fleet, 1992; Yukl, 1998).

In summary, there is a call in the literature for the study of leadership at the organizational level of analysis taking a distributed or collective approach. Within this context, the notion of one penultimate theoretical approach to leadership is considered misplaced given the complexity of modern organizations (Gronn, 2002; Yukl, 1999). Moreover, with respect to leadership for health promotion, one rare study (Witte, 1993) at the organizational level found evidence that an overall participative style compared to an authoritarian one in private sector organizations (n=48) was related to current or future plans for workplace health promotion. Thus, there appears to be a general gap in the research literature with regard to the study of leadership at an organizational level and specifically with regard to health promotion by health organizations.

1.3.2 Health Promotion and Heart Health Promotion

As defined in the seminal Ottawa Charter (World Health Organization, 1987), health promotion is a process of enabling people to increase control over, and to improve, their health. Therefore, health promotion goes beyond individual risk reduction and healthy lifestyle promotion to include changes at the socio-environmental level that support the increased individual likelihood of all societal members to develop and maintain health. Hence, health promotion is, as Epp (1986) described, multi-faceted involving education, research, legislation, policy coordination, and community development. Thus, in this view, success in the reduction of the burden of CVD is seen as requiring multiple strategies targeted to changing social and physical environments to enhance the likelihood for individuals to develop and maintain healthy lifestyles. The individual is therefore seen as nested within a specific socio-environmental context, which influences and supports (or not) the individual to adopt and maintain healthier behaviours, such as balanced nutrition, regular physical activity, and reduction of tobacco-use. Leadership at multiple levels and across sectors of society is therefore fundamental to tackle such complex, critical population health issues.

However, it is important to focus on areas such as heart health, which provide an opportunity for greater gains related to reducing community-wide health issues. Leadership at the local level by RHAs with this health mandate is therefore essential to collaborative action at a population health level to reduce cardiovascular morbidity and mortality rates in Alberta. Through use of the *Determinants of Heart Health Model* (Health Canada, 1993) (see Chapter Three-Paper Two, Figure 2, p. 74), which delineates risk factors and environmental risk conditions that underlie CVD, the potential to achieve greater health gains for the Alberta population will be enhanced (see Appendix I-Section 3.1.1–The Socio-Environmental Approach in Health Promotion).

The above briefly introduces key aspects germane to this thesis on leadership theory and research as well as health promotion and heart health promotion. Given that leadership for HP capacity building in RHAs clearly involves change, the following introduces key conceptualizations related to organization change to further illuminate the theoretical context of the study.

1.3.3 Organizational Learning and Change

There are a number of theoretical perspectives on organizational change (see Appendix I-Section 4.2–Organizational Change Theory). Change as a continuous process is most relevant to the basic strategies advocated with regards to health promotion (i.e., the Ottawa Charter generic action strategies) (World Health Organization, 1987). In the continuous view, change occurs over time and at multiple levels of the organization (Pettigrew, 1979; Schein, 1991; Weick & Quinn, 1999; see also Beer & Eisenstat, 1996; Kumar & Thibodeaux, 1990), which is–not surprisingly–congruent with emergent thinking on organizational leadership as outlined above. Continuous change is defined as a process that relates to "…questions of organizational goals, their emergence and transformation, and to changes in systems of beliefs, power relationships, and culture" (Pettigrew, 1979, p. 571). Weick and Quinn (1999) recommend a focus on "changing" rather than on "change" to capture the dynamic, spiral trajectory of continuous change and suggest that change begins with leader development to model organizational change thus attracting members to the change rather than "managing them" through it (p. 382).

An important underlying supposition related to a continuous change process, such as capacity building to enhance RHA HP/HHP actions, is that of the "learning organization" (Argyris & Schon, 1978; Senge, 1990; Simon, 1969). Successful capacity building is seen as rendering the organization more competent not only to address the health issue of focus, but also to tackle other problems in the future (Hawe, Noort, King & Jordens, 1997). Therefore, leadership that builds organizational capacity for health promotion involves organizational learning, which enables expansion of institutional capacity to change (Watkins & Marsick, 1993). Moreover, all organizations learn through their individual members (Kim, 1993) and thus learning and capacity for ongoing change at an organizational level is strongly inter-connected with ability to support organization members to learn and grow.

Argyris and Schon's (1978) seminal work on organizational learning provides the basis for Nutt and Backoff's (1997) model of types of continuous organizational change process. First order ("single loop") change centers on continuous improvement of existing organizational approaches. Second order ("double loop") change involves transformation and calls for innovation to lead the change, through experimentation and feedback processes that challenge current assumptions held by members about what is known or done in the organization (see Appendix I–Review of the Literature, Section I.4.2.1 The Learning Organization).

Alternatively, Nadler and Tushman (1989) propose four types of organizational change (i.e., tuning, adaptation, reorientation, and re-creation). The type of change is determined by two criteria: the scope of change within the organization (i.e., strategic or incremental) and the organizational position in relation to the change (i.e., anticipatory or reactive). Reorientation, most germane to this study, is described as *frame bending* in that its scope is strategic and its position is anticipatory. That is, this type of organizational change anticipates the need for a change and builds on the past through ongoing processes that result in organization-wide shifts. It contrasts with re-creation, which again is strategic change in nature, but driven by external events (i.e., reactive) that require radical or *frame-breaking* changes in senior leadership, values, strategy, and culture. A reorientation type of change links particularly well with the generic action strategy of "reorienting the health system" to a health promotion focus as advocated by the Ottawa Charter (World Health Organization, 1987). Such a "reorienting action strategy" is defined as "working toward the fulfillment of health services' shared responsibility for health promotion, together with institutions, governments, health professionals as well as community groups and individuals" (Hamilton & Bhatti, 1996). Thus, the type of organizational change process is reorientation, while the content of the change (i.e., the action strategy) focuses on "reorientation" as well, by concentration on strategies to enhance HP actions by health services.

Moreover, ongoing strategic change is seen a requirement for all organizations; however, public-private sector differences require differentiation in the approaches applied (Nutt & Backoff, 1995; Salipante & Golden-Biddle, 1995). That is, *competition* and *economic gain* drive strategy realignment in private sector organizations, while strategic change in the public sector is driven by the determination of *social needs* as well as organizational decisions on *responses* to those needs, with an emphasis on *cooperation* to enable service delivery, (Nutt & Backoff, 1995). It is therefore very important for public sector organizations to modify dominant private sector approaches to emphasize continuous change that builds on existing organizational strengths in the development of collaborative responses, which address community health needs. In summary, rather than rejecting or denying the heritage of health organizational practices through frame-breaking change, public organizations such as RHAs ought to preserve stability and continuity through strong linking of organization tradition and history within the strategic change process itself (Salipante & Golden- Biddle, 1995).

Organizational leadership, which aims to enhance RHA action on HP/HHP, ought to consider–not only the above notions relevant to continuous organizational change–but also the potential for perspective differences regarding health promotion, across organizational levels within the health setting itself. This is briefly discussed in the following section.

1.3.4 Differences in Organizational Perspectives

The complexity of a modern health organization, and the existence of various subcultures within it, enhances the potential for perspective differentials between members across organizational levels or divisions. Several theories address this issue. For example, domain theory (Kouzes & Mico, 1979) views public or human service organizations as distinctly different from the private sector and dominated by three domains: (1) policy domain, (2) management domain, and (3) service domain. In application to RHAs, the policy domain includes board members, the management domain is comprised of senior and middle managers, and a variety of health profession practitioners form the service domain. Different interests and ethics in conflict with each other are posited, thus this theory highlights power and values differentials across the domains.

From another perspective, Schein (1992) proposes at least three generic cultures of management function within complex organizations (such as RHAs): the operators, the engineers, and the executives. The executives can be seen as senior/middle management, the engineers are those with specialized technical and professional expertise generally found within the middle layers of an organization, and operators are frontline workers (service practitioners). Additionally, most recent conceptualizations describe macro-level leadership and micro-level leadership and differentiate leadership *of* the organization versus leadership *in* the organization. In this view, the chief executive officer (CEO) and board levels provide leadership *of* the organization (i.e., at the macro or executive level), while those at organizational levels below the CEO are considered to provide leadership *in* the organization (i.e., collective organizational leadership) (Boal & Hooijberg, 2000).

Thus, investigations related to leadership and organizational actions for health promotion ought to incorporate perspectives from various organizational levels. The current study includes representation from three levels across all 17 Alberta RHAs: service practitioners, middle/senior managers and board members. As well, the study takes a collective leadership approach in examining the construct of organizational leadership for HP. In the next section, challenges in Alberta RHAs are discussed with respect to organizational leadership for health promotion. Presented are the study background and the Alberta Model, the *process* of capacity building for HP as it relates to organizational leadership, and the study definition of organizational leadership for health promotion.

1.4 Leadership and Building Organizational Capacity For HP

1.4.1 Study Background

The current study is conducted within the baseline assessment of regional health authorities in the province of Alberta through the Alberta Heart Health Project-Dissemination Phase (AHHP). Over the course of five years and within the context of RHAs as learning organizations, the AHHP is exploring the process of building capacity for health promotion in the 17 regional health authorities of Alberta, (Smith, Raine, Anderson, Dyck, Plotnikoff, Ness & McLaughlin, 2001). Through use of a time series design, the AHHP is investigating the effect of interventions (repeated capacity assessment with feedback and educational interventions) on the development of capacity, the process of change and the transformation of capacity into heart health promotion actions in regional health authorities.

As a provincial level component of the Canadian Heart Health Initiative (CHHI), the AHHP incorporates thinking articulated by the international heart health movement via the 1998 Singapore Declaration for Heart Health Promotion (Pearson et al., 1998). In the context of creating institutional capacity for health promotion action to reduce CVD, a key overarching theme in the Declaration is the delineation of *infrastructure* and *will to act* as the two pivotal components of capacity.

Other authors propose the notion of "multiplying health gains" (Hawe, Noort, King & Jordens, 1997) and describe capacity as "the value added to a system so that it can sustain any particular health promotion and disease prevention program" (p. 32). Hence, in the case of heart health, the "value-added" can be defined as the creation or strengthening of the organization's infrastructure and will to act on HHP matters, thereby "creating generic capacity to tackle health issues" in general (Hawe et al., 1997, p. 33). Organizational acquisition (i.e., learning) of HP knowledge and skills on heart health, is therefore seen as preparing it to address health promotion issues on other chronic diseases. This is evidenced by previous phases of the CHHI in which over 400 organizations participated and found the heart health focus to be a "...good entry point to address a number of issues including healthy environments and socio-economic determinants of risk related to the prevention of other non-communicable diseases" (Stachenko, 1994, p. 109).

1.4.2 The Alberta Model

Building on these ideas, the AHHP has reconceptualized the work of the Declaration to include leadership as a third key dimension of capacity building, which is situated within the context of learning organizations (see Figure 1, Chapter Two-Paper One, p. 34 and Figure 1, Chapter Three-Paper Two, p. 66). The model depicts: *leadership* as the basis upon which the development of capacity rests. Consistent with the Singapore Declaration, *will to act* and *infrastructure* are the pillars of capacity. The spiral in the model depicts Rogers' (1995) stages of diffusion of innovations within organizations, shown as a nonlinear progression of learning for organizational change. The ultimate outcome of capacity building is increased health promotion actions. In this model, leadership is conceptualized as a unique but interdependent construct in driving change that develops organizational *will to act* on HP and creates *infrastructure* for increased organizational (RHA) action on health promotion and heart health specifically (Raine-Travers, Dyck, McLaughlin, Collins-Nakai, Ness, Plotnikoff & Dressendorfer, 1999).

1.4.3 Process of Capacity Building and Leadership

The process of developing capacity, as depicted in the Alberta Model above, is defined by the Singapore Declaration as *improving an organization's or population's ability to plan, organize, implement and sustain comprehensive health promotion interventions*. Improvement in such organizational abilities is therefore closely linked to the principles in seminal World Health Organization documents on health promotion (Ottawa Charter, 1987; Jakarta Declaration, 1998) and the Determinants of Heart Health Model (Health Canada, 1993). Clearly, collective organizational leadership for HP encompasses organizational practices and processes based on these established principles.

Moreover, integration of HP knowledge into skillful applications (MacLean, 1996) requires ongoing organizational leadership to bridge the gap between what is known and practiced. That is, the realization that health promotion, and specifically heart health promotion, should be a priority for RHAs is not sufficient to assure implementation of health promotion action. Leadership is essential to bridge the gap between advances in knowledge and that which is integrated by health organizations (RHAs) and ultimately incorporated into ongoing practices (i.e., institutionalized) (AHHP Project, 1999).

Further to the above, the author has been involved in the AHHP as follows.

- Participant in AHHP-Dissemination Phase proposal development discussion sessions, including research team development of the model (see Figure 1, Chapter 2, p. 34 and Chapter 3, p. 66) tested in the project.
- Participant in the external review of the project proposal conducted by an international panel of experts (March 1999).

- Contributions to the development of the Health Promotion Organizational Capacity Survey currently being used in the AHHP.

Other investigators are in the process of reporting on the components of will to act (Anderson, Plotnikoff, Raine, Cook, Smith & Barrett, under review) and infrastructure (Plotnikoff, Anderson, Raine, Cook & Barrett, under review) per the above Alberta Model. The current study therefore contributes to the overall project by focusing more in-depth on leadership as a key component in change processes aimed at building RHA capacity for HP/HHP action.

1.4.4 Defining Organizational Leadership for Health Promotion

As illustrated above, leadership is a highly complex phenomenon and therefore its definitions are varied and multi-faceted. Yukl and Van Fleet (1992) advocate a focus on leadership as a process whereby influence is intentionally exerted in the organization for the achievement of goals. They define leadership as:

> A process that includes influencing the task objectives and strategies of a group or organization, influencing people in the organization to implement the strategies and achieve the objectives, influencing group maintenance and identification and influencing the culture of the organization (p. 149).

Rather than innate traits of an individual or a position in the organizational hierarchy, leadership therefore becomes a pervasive function enacted by members at different levels of the organization, essential to the attainment of shared organizational objectives (Nirenberg, 2001). A multi-prong approach to the definition of "Organizational leadership for HP" is clearly needed to guide investigation of capacities required for RHA actions that improve the population's heart health.

Organizational leadership for HP is defined as a multi-dimensional process in which members, across multiple levels, exert influence on:

a) The development of heart health promotion objectives and action strategies,
b) The implementation of action strategies to achieve heart health objectives,
c) Organizational practices which strengthen group involvement and commitment to ongoing health promotion efforts, and
d) The development of a learning culture to sustain up-to-date health promotion actions by the organization.

Thus, this definition takes a collective organizational leadership stance. It particularizes the work of Yukl & Van Fleet (1992) to a HHP focus and modifies it by incorporating Hawe and colleagues (1997) notion of "multiplying health gains." The definition therefore integrates the development of organizational members in tackling this one public health issue to build and sustain capacity for actions on it as well as on others in the future.

1.5 The RHA Dilemma and Opportunity

As outlined above, the development of RHA heart health promotion capacity involves continuous change processes focused on a "reorientation" of RHAs in which health promotion interventions are valued as equal with treatment and care approaches in terms of policy and resource allocation. However, given the current policy environment and recent calls for further fiscal constraints within the provincial health sector, both an opportunity and a dilemma exists for Alberta RHAs in relation to heart health. The dilemma is as follows. CVD is a major factor in admissions for acute and chronic illnesses (Heart and Stroke Foundation of Canada, 2002). However, constricted resources, stretched to address such issues, could make the development of the *will to act* to create an *infrastructure* for actions targeted to longer-term population heart health gains less probable. Yet, an aging population (Alberta Health and Wellness, 2001) and alarming Canadian childhood obesity rates (Tremblay & Willms, 2000) require health promotion action now in order to avoid future rate increases in CVD and other chronic disease-related disability and mortality. If not dealt with this will have a profound impact through concomitant increased strain on acute care, other segments of the health system, and other sectors of the economy. As well, therein lies the opportunity; that is, to convince the policy and power brokers that investment in longer-term health promotion strategies now, could offer population health gains across the life span of citizens as well as relieve and/or prevent stress on an overburdened health care system.

This dilemma calls for leadership at multiple levels provincially and within RHAs to make the reorientation changes necessary within current health sector fiscal and policy environments. The recent Report of the Premier's Advisory Council on Health (2002) (a.k.a. the Mazankowski Report) in Alberta is encouraging in that it recommends a focus on health promotion/disease prevention, healthy aging, early childhood development and incentives to stay healthy. Leadership is needed now to move beyond the rhetoric to a focus on the development of effective health promoting approaches.

Advancement of scientific knowledge is therefore required on the capacities required by the system (i.e., RHAs) to intervene effectively to improve population health. Collective organizational leadership for health promotion is an important focus for this research. Moreover, there is a gap in the research literature with regard to measurement of organizational leadership with respect to health promotion practice by health care settings. The development of psychometrically robust measures of organizational leadership for HP and the subsequent examination of their relationship with HP/HHP action by RHAs could, therefore, advance knowledge on building organizational capacity to address these and other population health issues.

In summary, the overall purpose of this thesis is two-fold: (1) To develop measures of collective organizational leadership for health promotion within the context of RHAs as learning organizations, and (2) To examine, across RHA respondent groups, the relationships of these leadership measures with actions for HP/HHP by Alberta RHAs. In addition, a subsidiary examination will be conducted on the associations of leadership with will to act and infrastructure in relation to RHA actions for health promotion as posited by the Alberta Model.

1.6 Overall Rationale for the Study

The 17 Alberta RHAs are ideally positioned to support community heart health initiatives to address cardiovascular disease, the number one threat to the province's population. Examination of the elements of leadership within the context of RHAs as learning organizations is foundational to ongoing change processes aimed at strengthening capability for such health promotion initiatives. Fundamental to this examination is the establishment of valid and reliable measures of collective organizational leadership for HP. These measures could then be used in investigating the relationships of leadership with RHA actions for HP/HHP to offer guidance on the development of promising interventions that enhance organizational capability to address key public health issues, such as heart health. Additionally, the study may contribute to multiplying organizational interventions on other important health promotion issues. As well, valid and reliable measures of will to act and infrastructure for health promotion have been established by other investigators and are available for use in preliminary testing of the Alberta Model (Anderson et al., under review; Plotnikoff et al., under review). Finally, given the prominence of organizational change in the current global environment, the study could potentially contribute to conceptualizations on leadership for capacity building in other public service, voluntary and private sector organizations.

1.7 Research Aims

1.7.1 Aim One

The first aim of this study is to develop psychometrically robust measures of collective organizational leadership for health promotion for use in the examination of capacity for health promotion and heart health actions in regional health authorities.

1.7.2 Research Aim Two

The second aim of this study is to examine the comparability amongst RHA respondent groups (i.e., service practitioners, senior/middle management and board members) on factors of collective organizational leadership for health promotion. The following research questions will answer this aim.

Research Question 1 Are there differences between respondent groups (i.e., board members, senior/middle management, and service practitioners) across Alberta's 17 RHAs on factors of organizational leadership for health promotion?

Research Question 2 Are there differences between respondent groups (i.e., board members, senior/middle management, and service practitioners) on factors of organizational leadership in RHAs with high and with low baseline scores on organizational capacity for HP?

1.7.3 Research Aim Three

Aim three is to investigate the relationships of collective organizational leadership for HP factors with RHA actions for health promotion and heart health promotion adjusted for socio-demographic factors. To achieve this aim, the following questions will be answered.

Research Question 1: Across all RHAs, what is the relationship of each of the factors of organizational leadership with HP actions related to: i) assessment, ii) planning, iii) implementation, iv) evaluation, v) aggregate scores of these HP activities, and vi) involvement in Ottawa Charter action strategies?

Research Question 2: Across all RHAs, what is the relationship of each of the factors of organizational leadership with HHP actions related to: i) genetic, ii) behavioural, iii) psychosocial, iv) environmental, and v) aggregate scores of risk factors and conditions?

Research Question 3: Across all RHAs, what is the relationship of each of the factors of organizational leadership with HHP actions on the behavioural risks in specific settings related to: i) use of tobacco, ii) poor nutrition, iii) physical inactivity, and iv) aggregate scores of these behavioural risks?

1.7.4 Subsidiary Research Question

In addition to the above three research aims, the following subsidiary question related to the Alberta Model will be answered.

Using global measures for each construct, what is the relationship of organizational leadership with will to act and infrastructure across all Alberta RHAs in relation to health promotion and heart health promotion?

1.8 Plan of the Thesis

This thesis is a mixed format, as classified by the guidelines set by the Faculty of Graduate Studies and Research and the Centre for Health Promotion Studies at the University of Alberta. The reader should therefore expect overlap between chapters as outlined below because of the focus on the development of two manuscripts of publishable quality while providing the traditional content required for a thesis.

Subsequent to this introduction, chapters two and three present the independent manuscripts. The chapter two manuscript focuses on research aim one above; the chapter three manuscript addresses the above research aims two and three, and the subsidiary research question. Each document contains elements specific to its individual research aim(s): introduction including review of literature, methods, results, discussion, footnotes, references, tables and figures. Thus, some repetition between documents is to be expected.

Chapter four offers a brief synthesis of the findings and conclusions from the two manuscripts as well as overall directions for research and implications and recommendations for HP policy, practice and education. Appendix I contains an in-depth review of the literature and therefore overlaps with and expands the essential concepts introduced here in chapter one. Appendix II records a full account of the methods. Appendix III offers a complete listing of references for the entire thesis as well as key background documents. A copy of the original research ethics approval certificate is included in Appendix IV. Finally, Appendix V provides the scale items of the AHHP survey instrument used to answer all research aims and questions.

CHAPTER TWO — PAPER ONE

Development of Measures of Organizational Leadership for Health Promotion by Regional Health Authorities

L.L. Barrett,[1] R.C. Plotnikoff,[1,2] K. Raine,[1,2] & D. Anderson[2]

[1]Centre for Health Promotion Studies, University of Alberta, Canada

[2]Alberta Heart Health Project, University of Alberta, Canada

ABSTRACT

This study describes the development and psychometric evaluation of four scales measuring leadership for health promotion at an organizational level in the baseline survey (n=144) of the Alberta Heart Health Project. Content validity was established through a series of focus groups and expert opinion appraisals, pilot testing of a draft based on capacity assessment instruments developed by other provinces involved in the Canadian Heart Health Initiative (CHHI), and through the literature. Psychometric analyses provided empirical evidence of the construct validity and reliability of the organizational leadership scales. Principal component analysis verified the unidimensionality of the leadership scales of (a) Practices for organizational learning, (b) Wellness planning, (c) Workplace milieu and (d) Organization member development. Scale alpha coefficiencies (Cronbach's alpha) ranged between 0.79 and 0.91, thus establishing good to high scale internal consistencies. These measures can be used by both researchers and practitioners for the assessment of organizational leadership for health promotion and heart health promotion.

INTRODUCTION

Leadership, in *ways of thinking about and taking action on* serious public health issues facing our society in the 21st Century, is central to fostering creative insights and effective actions on the problems identified. Leadership has been described as important to the building of capacity to mobilize the will and organize an infrastructure to reduce the widespread impact of cardiovascular disease (CVD) on the health of citizens across the developed world (Pearson et al., 1998). Recognized as a leading cause of morbidity and mortality in these countries (World Health Organization, 2002), CVD is the most frequent cause of mortality in the province of Alberta, Canada. That is, more than 50% of the Alberta population has been shown to be at elevated risk of CVD due to the presence of one or more major risk factors (Alberta Health, 1997).

To address this extensive health issue, international and national experts have advocated that health promoting changes at the socio-environmental level of society (i.e., beyond individual lifestyle) are key to sustainable actions that effectively reduce such widespread cardiovascular morbidity and mortality (Pipe, 1995; Pearson et al., 1998). Moreover, leadership at the local level is viewed as paramount to develop and sustain community norms that support healthy behaviours and discourage unhealthy ones over the lifespan (Hancock, 1993; Minkler, 1998). Hence leadership, across sectors of society and at multiple levels, is essential to tackle these complex population health issues.

As a key feature of the restructured Canadian health system since the mid-1990's, regional health authorities (RHAs) have been vested with accountability for population health promotion in Alberta. These RHAs have mandated leadership roles in efforts to reduce the burden of CVD across communities within their respective geographical boundaries. Their collective capacity for effective action on heart health promotion (HHP) is therefore vital in addressing the CVD issue in the province.

Thus, leadership for HP and its relationship to RHA action on heart health issues are areas where advancement of knowledge could make valuable contributions to improving the health of the population. However, psychometrically robust measures of organizational leadership for HP are needed to enable examination of these relationships. The current state of knowledge in relation to measuring such organizational leadership is summarized below.

Review of the Literature on Leadership

Over the past century, primary views on leadership theory have evolved from the extensive and complex literature over a number of broad categories. These range from the earlier "great man" concept, trait, behavioural, and two-factor theories (e.g., participative vs. authoritarian styles) to the more recent transactional, situational, charismatic, transformational, and the new leadership theories (Hallam, 2001; Yukl & Van Fleet, 1990; Yukl, 1998). Incorporation of spirituality (Chang, 2001; Vaill, 2000) in new leadership theory (i.e., a hybrid of transactional, transformational and charismatic leadership) is currently emerging as an additional integrative force for individual and organizational well-being.

Within leadership theory, the construct of leadership has typically been associated with the behaviour of an individual leader in the context of hierarchical relationship with a number of subordinates and with the effects measured at the small group or dyadic level of analysis (Walman & Yammarino, 1999; Yukl, 1999). Researchers have therefore focused on the formal leader-follower interface.

Qualitative studies have included ethnographic, observational studies describing the richness and complexity of various leadership roles (Mintzberg, 1973; Kotter, 1982). Features of leaders have also been described (Kaplan, 1990; Noel, 1989); for example, the impact of intrapsychic aspects such as the "inner theatre" of leaders on organizational culture and strategy (Kets de Vries, 1994). Conversely, subordinates' core fantasies about leaders have also been examined (Gabriel, 1997). Recently, Gronn (1999, 2002) has recommended a focus beyond the dyadic hierarchical relationship to a broader organizational approach in the study of leadership.

Quantitative studies, for the most part, have again focused on dyadic relationships in smaller organizational units such as departments and groups (House & Podsakoff, 1994). Recent testing of dimensions of leadership are mainly based on the following paradigms: Bass's (1990) new paradigm, the transactional—transformational model (Carless, 1998; Den Harog, Van Muijen & Koopman, 1997; Fields & Herold, 1997; Tepper & Percy, 1994); the transactional (Case, 1998; Schriesheim, Neider, Scandura, & Tepper, 1992; Wayne, Shore & Liden, 1997; Wilhelm, Herd & Steiner, 1993); the charismatic (Gabriel, 1997; Gardner & Avolio, 1998; Pillai & Meindl, 1998; Shamir, Zakay, Breinin & Popper, 1998; Walman & Yammarino, 1999); or the situational (Howell & Dorfman, 1986; Pitner, 1988; Podsakoff et al., 1996; Podsakoff & MacKenzie, 1997; Pool, 1997). Older theories have tended to be subsumed in these more sophisticated models and are tested or discussed less frequently on an independent basis; for example, behavioural (Mosley, 1998), two-factor (Witte, 1993) and trait theories (Kirkpatrick & Locke, 1991).

These quantitative studies have employed a number of instruments that purport to measure various leadership dimensions. Examples of instruments which intend to test these more sophisticated theories are: the Multifactor Leadership Questionnaire (MLQ) (Bass, 1985); the revised MLQ (Bass & Avolio, 1989); the Leadership Practices Inventory (LPI) (Posner & Kouzes, 1988); the Leadership Practices Inventory—Updated Version (Posner & Kouzes, 1993); the Substitutes for Leadership Model—Revised (Kerr & Jermier, 1978); and Substitutes for Leadership—Reduced Version (Podsakoff, Niehoff, MacKenzie & Williams, 1993).

These specific leadership instruments have focused on leader-follower behaviours in an attempt to evaluate dimensions of leadership, often with mixed results. For example, Carless (1998) assessed the discriminant validity of transformational leader behaviour as measured by the MLQ on an Australian sample of 1440 international bank subordinates and concluded this instrument assesses the single higher order construct of transformational leadership but found little support for the assertion that it measures distinct leader behaviours.

There are recommendations to expand the conceptualization of leadership beyond the individual leader-follower relationship and the small group levels of analyses (Gronn, 1999; Walman & Yammarino, 1999; Yukl, 1999). In one rare study on leadership and health promotion in organizations as a whole (Witte, 1993) found that management style (i.e., democratic vs. authoritarian) in these private sector settings (n= 48) was related to prevalence of work place health promotion programs and plans for future health promotion initiatives. That is, those that were assessed to have overall democratic management styles tended to plan and implement more work place health promotion programs than those organizations assessed as a whole to be more authoritarian.

Some have argued that Kerr and Jermier's (1978) original "Substitutes for Leadership Model" with its focus on the situation makes an important contribution to the way in which leadership is conceptualized beyond contingency or interpersonal leadership models (Podsakoff & MacKenzie, 1997; Tosi & Kiker, 1997). According to this theory, certain individual, task, and organizational variables act as formal leadership substitutes negating the hierarchical superior's ability to exert either positive or negative influence over subordinate attitudes and effectiveness. These aspects of the situation are classified as *substitutes* and *neutralizers.* Characteristics of the subordinate (e.g., experience and education, professional orientation), the task (e.g., clarity, intrinsically-satisfying) and the organization (e.g., formal inflexible work rules and policies, cohesive work group, spatial distance) serve as specific *substitutes*. In contrast, *neutralizers* are those staff, task, or organizational characteristics, which prevent or negate the effects of specific leader behaviours (Kerr & Jermier, 1978; Pitner, 1988; Yukl & Van Fleet, 1992). For example, in their meta-analysis of 22 studies based on 36 independent samples totaling approximately 435 relationships, Podsakoff and colleagues (1996) found empirical evidence that a combination of substitute variables and leader behaviors accounted for a majority of the variance in employee attitudes and role perceptions. However, this model still focuses on measurement at the dyadic or group level through subordinate assessments of hierarchical leadership and substitutes for such leadership.

Recent theoretical literature argues that, in order to build the leadership competence required for organizational learning and growth to maximize attainment of goals, organizational approaches are needed which involve both individual hierarchical leader development and collective leadership development linked with each other and to a broader organizational strategy (Day, 2001; Hall & Seibert, 1992; Latham & Seijts, 1998). That is, *leader* development is viewed as purposeful investment in individual knowledge, skills and abilities for greater *intrapersonal competence*, such as self-awareness, self-regulation, and self-motivation. In contrast to this intra-psychic differentiation of the individual, *leadership* development is seen as a cross-organizational integration strategy that focuses on *interpersonal competence* through application of personal self-understandings to social and organizational imperatives. Specifically, leadership development assists individuals to relate, coordinate efforts, build commitment, and develop broader social networks through the application of self-understandings to social and organizational imperatives (Day, 2001). These recent conceptualizations shift the focus on investigating leadership from a preoccupation with the leader-follower interface to a broader focus on the organization as a whole and its interpersonal processes that influence actions for organizational goal achievement (Day, 2001; Nirenberg, 2001; Yukl & Van Fleet, 1992; Yukl, 1998). Leadership is thus conceptualized as enabling, catalyzing, or facilitating such organizational actions rather than directing them, given the complexity of modern organizations and the impracticality of the controlling approach in such contexts (Marion & Uhl-Bien, 2001).

In summary, the dynamic and complex literature on leadership underscores its importance to organizational life; however, limited research exists with respect to its study at the organization-wide level and the examination of leadership is even more limited with respect to health promotion in health care contexts. Within the field of health promotion itself, leadership has been described as a large "blind spot" in that "we do not understand leadership, we do not research leadership, we do not invest in leadership" (Catford, 1997, p. 4). The purpose of the current study therefore is to develop psychometrically robust measures of leadership for health promotion at the organizational level for use in the examination of Alberta regional health authority capacity for HP/HHP actions.

Background

The current study develops measures of organizational leadership for health promotion at the organizational level of analysis within the baseline capacity assessment of regional health authorities in the Alberta Heart Health Project: Dissemination Phase (AHHP; see Raine-Travers, Dyck, McLaughlin, Collins-Nakai, Ness, Plotnikoff & Dressendorfer, 1999). Over the course of five years and in the context of health settings as learning organizations, the AHHP is exploring the process of building capacity for health promotion within the 17 regional health authorities of Alberta (Smith, Raine, Anderson, Dyck, Plotnikoff, Ness & McLaughlin, 2001).

The project incorporates conceptualizations on the creation of organizational capacity for health promotion action in relation to heart health and other public health issues, as articulated by the international heart health movement through the Singapore Declaration[1] (Pearson et al., 1998). A key overarching theme in the Declaration is the delineation of *infrastructure* and *will to act* as the two pivotal components of capacity. Other authors (Hawe, Noort, King & Jordens, 1997) have described capacity for health promotion as "the *value added* to a system so that it can sustain any particular health promotion and disease prevention program, and so it has developed a set of critical skills and is willing to initiate additional health promotion and disease prevention programs" (p. 32). To integrate the two complementary approaches, Hawe and colleagues' conceptualization of the "value-added" can thus be specified using the dimensions from the Singapore Declaration. That is, "value-added" can be defined as the creation and/or strengthening of the dimensions of infrastructure and will to act for HHP thereby "creating generic capacity to tackle health issues" in general (p. 33).

Moreover, the AHHP has reconceptualized the work of the Declaration to include leadership as a key catalyzing force of capacity building for HP within the learning organization approach (Argyris & Schon, 1978; Senge, 1990; Simon, 1969) (see Figure 1). Thus, the Alberta Model depicts *leadership* as the basis upon which the development of capacity rests. Consistent with the Singapore Declaration, *will to act* and *infrastructure* are the pillars of capacity. The spiral in the model depicts Rogers' (1995) stages of diffusion of innovations within organizations, shown as a nonlinear progression of learning for organizational change. The ultimate outcome of capacity building is increased health promotion actions. Leadership is therefore conceptualized as a foundational dimension to drive organizational learning and change for development of its will to act and creation of an infrastructure for health promotion action.

[Insert Figure 1 about here]

Defining 'Organizational Leadership for Health Promotion'

Further to the Alberta Model, leadership is depicted as a process that develops infrastructure and mobilizes the organizational will to act on health promotion issues. Organizing such an infrastructure requires leadership in the development of health promotion policy, intellectual and scientific knowledge, physical and organizational systems and structures, and financial resources for health promotion generally and heart health specifically (Plotnikoff, Anderson, Raine, Cook & Barrett, under review). Mobilizing the organizational will entails leadership in the development of the conviction to act, setting priorities, and action through planning, beginning community mobilization, coordinating with partner organizations, and implementing HP initiatives (Anderson, Plotnikoff, Raine, Cook, Smith & Barrett, under review). Hence, leadership is essential to influence group functioning, culture, organizational learning, and change processes (Day, 2001; Yukl, 1999) that build these broad conditions (Pearson et al., 1998).

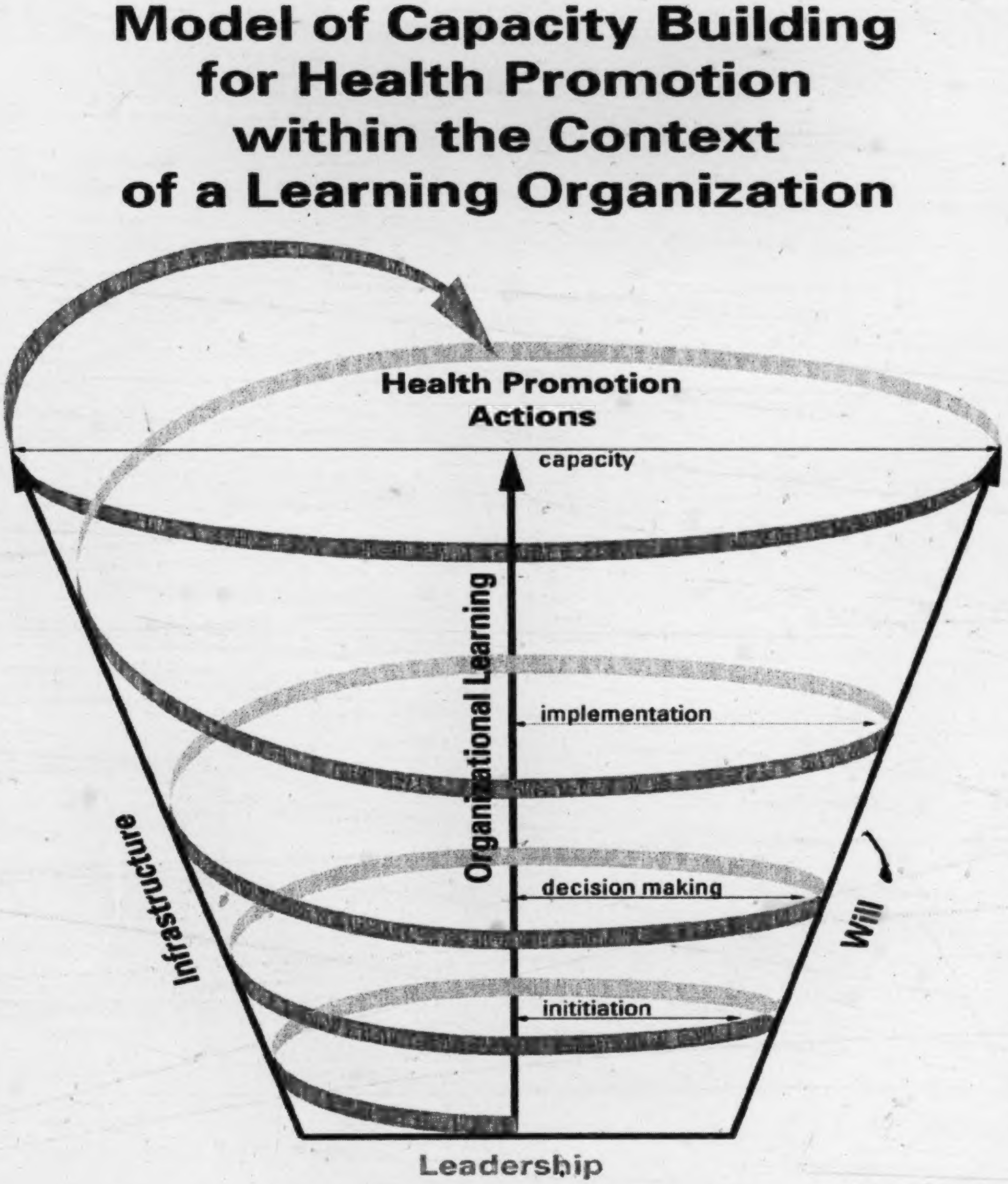


Figure 1 – The Alberta Model: Building Organizational Capacity for Health Promotion (Source: Alberta Heart Health Project, 1999)

Moreover, these dimensions of *will to act* and *infrastructure* require a willingness to lead by members at different hierarchical levels to realize organizational actions for health promotion. Prominent academics in organizational studies advocate such a focus on leadership as a multi-dimensional process whereby influence is intentionally exerted across the organization to reach specific goals (Yukl & Van Fleet, 1992). Leadership thus becomes a pervasive process throughout the organization (Nirenberg, 2001) whereby a number of members take on the role (social function) of influencing others to explicit actions that attain organizational goals, such as heart health promotion.

In this study, the emphasis is on leadership as multiple processes that influence and shape organizational actions for HP/HHP. Rather than innate traits of an individual or merely a position in the organizational hierarchy, leadership is conceived as a pervasive function enacted by many members across the organization. Specifically, building on the work of Hawe et al. (1997), Nirenberg (2001), and Yukl and Van Fleet (1992), organizational leadership for HP/HHP is defined as a multi-dimensional process in which members, across multiple levels, exert influence on:

a) The development of heart health promotion objectives and action strategies,
b) The implementation of action strategies to achieve heart health objectives,
c) Organizational practices which strengthen group involvement and commitment to ongoing health promotion efforts, and
d) The development of a learning culture that sustains up-to-date health promotion actions by the organization.

Further, if leadership is defined as above, then how does one identify such leaders in various parts of the organization? Kaplan (1994) suggests that the essence of a leader is someone who does not accept the constraints of a "given" set of circumstances and either through position or personality gets involved in "co-creating" new realities. Such individuals do not treat economic and institutional constraints as absolute realities, but feel empowered to act and indeed value the importance of creativity in the face of such constraints. Further, an organization can optimize leadership in its various parts through developing an environment which stimulates individual members to get involved in opportunities to transform constraints into new organizational realities on specific issues. In the above definition of leadership, the development and the implementation of HHP objectives and action strategies reflect processes to enhance such involvement on the specific issue of heart health. Building on Hawe and colleagues work (1997, 2000), the latter part of the definition focuses on the development of organizational practices for commitment to ongoing HP and of a learning culture for best HP practices. Thus, this reflects an organization's opportunities to enhance its ongoing capacity to tackle other health promotion issues via the learnings experienced in addressing a specific health issue (i.e., HHP).

METHODS

Instrument

Further to the above definition of leadership (see Defining Organizational Leadership for Health Promotion) as multi-dimensional processes linking members across different levels in the influencing of HP/HHP goals, objectives, and their attainment, two leadership scales were developed by the AHHP research team. These scales measured (1) practices that strengthen organizational *involvement in the development and implementation* of HP objectives and strategies and (2) practices that develop an organizational *learning culture to sustain* such involvement in HP. The variables selected for inclusion in these leadership scales were based on those used in other provincial heart health research efforts (i.e., Nova Scotia, Ontario, Saskatchewan, and British Columbia) and on the literature (Hawe et al., 2000) supporting an association between leadership and organizational capacity for health promotion.

Instrument Development

A 2-day "think tank" was held with CHHI researchers from the provinces of Saskatchewan, British Columbia, Ontario, and Nova Scotia with the purpose of discussing experiences with the shared assessment tools from each provincial project. A table was constructed listing the different items thought to reflect the construct of organizational leadership for HP. This assisted the identification of the leadership measures along with establishing content validity. Some items and response choices were modified to meet AHHP research needs. All leadership items were then compiled into a questionnaire addressing organizational capacity. The capacity survey required individual respondents to reflect on the organization as a whole and its capacity to do heart health promotion.

The instrument was subjected to a focus test with health promotion professionals (n=5) (including faculty and staff from national and provincial health agencies) to further establish and verify content validity of the measures. Focus group participants initially completed the questionnaire and were asked to identify any expressions or items that appeared unclear. Subsequent modifications were made to the instruments.

A pilot version of the questionnaire was then drafted and tested with three health promotion based organizations from Alberta (n=16). The organizations represented local, provincial and national level organizations, but did not include the target group of the study proper. The pilot test aimed at identification of any questionnaire item ambiguities, confirmation of the clarity of all questions, and verification of the content validity of the draft tool. The instrument was also reviewed by 37 key individuals from the CHHI to verify the content validity of the organizational leadership for health promotion measures.

Instrument for Study Proper

Based on the above face and content validity testing, the final questionnaire was designed to elicit the perceived magnitude of organizational leadership for health promotion in RHAs. It contained 33 items designed to measure the current level of organization-wide practices: to strengthen organizational involvement in health promotion (one scale, 27 items) and for organizational learning (one scale, 6 items). This second scale is based on Hawe and colleagues (2000) eleven-item "Capacity for Organizational Learning" Checklist,[2] modified for AHHP research purposes. Five point Likert-type scales were used to operationalize all items.

Participants

In collaboration with the site AHHP coordinator in each RHA, a convenience sample of 158 representatives from three organizational levels across all 17 RHAs in the province of Alberta were identified to complete the final instrument. With a response rate of 91% (n=144), they included board members (n=30), senior/middle management (n=58), and service providers (n=56). Each respondent completed an individual assessment of perceived overall organizational leadership for HP/HHP. The respondents, in the majority, were females (85%) ranging in age from 40 to 49 years (M= 3.2, SD= .88) and had worked an average of 4.5 years (SD= 4.4) in their current position.

Analysis: Assessment of Construct Validity

Scales were developed using the following procedures. Global scales were established *a priori* based on the literature and those previously field-tested in other provincial research efforts of the CHHI. Scale structures were then tested using factorial analytical techniques (Tabachnick & Fidell, 1996). Principal component analysis (PCA) was used to confirm the unidimensionality of theoretically predetermined scales and/or to reduce large number of variables into more parsimonious and manageable components. Of the two original scales, one was confirmed and one scale was reduced to three subscales based on a combined analysis of all 33 items. Statistical Package for Social Science version 10.0 (SPSS) was used for all calculations.

Each respondent was required to have answered at least two-thirds of the items pertaining to a particular scale to be included in the PCA (Plotnikoff, 1994). Ten cases were identified as borderline or not meeting this standard, however on further PCA analysis the difference between inclusion and removal of these cases was negligible. Due to the small sample size, these cases were retained and any missing data were replaced with the individual variable mean (Tabachnick & Fidell, 1996).

Next, Bartlett's test of sphericity and the Kaiser-Meyer Olkin (KMO) test of sampling adequacy, were performed and confirmed the appropriateness of conducting PCA with this sample (Norusis, 1993; Tabachnick & Fidell, 1996). As a general rule, factor analytic techniques require a minimum of five to ten cases for every variable tested. However, Bartlett's test of sphericity is considered strongly predictive of sampling adequacy when the number of variables per case is four or five, as was the situation in this sample (Tabachnick & Fidell, 1996). With all scales attaining a significance level of $p<.001$, this test rejected the hypothesis that "the correlation matrix is an identity" and thus the sample was at an adequate level to perform PCA. Finally, the KMO test revealed a value of 0.92 for the set of variables, thus well above the 0.50 considered satisfactory to explain the correlations between variables (Norusis, 1993). Therefore, the KMO test of sampling adequacy provided additional evidence for the appropriateness of conducting PCA with this sample (Tabachnick & Fidell, 1996).

Eigenvalues were then examined and components conserved if their respective eigenvalues were greater than or equal to 1.0. PCA with Kaiser normalization and varimax rotation (orthogonal) were then performed on the original components extracted (Tabachnick & Fidell, 1996). Based on a combined analysis of all items from both original leadership scales, the inter-item correlation matrix provided evidence of numerous correlations higher than the 0.30 item suppression level. An item was considered to belong to a given component if its correlation was

0.40 or higher and differences in cross loadings on opposing factors were 0.20 or greater (Plotnikoff, 1994). In some instances, cross loading differences less than 0.20 were accepted if the item contributed important content validity to the subscale (Plotnikoff, 1994). Two PCA analyses were conducted to trim items using the above parameters. Based on analysis of the final solution, the appropriate number of components were conserved and interpreted.

Cronbach's alpha testing was used to estimate the internal consistency of each of the leadership scales. After PCA and reliability analyses, scales were created and named. This final solution was determined by examination of item content congruency as well as PCA and reliability test results (Tabachnick & Fidell, 1996). Last, bivariate correlation testing of the new scales using Pearson's correlation coefficient was performed to further establish the unidimensionality of each scale.

RESULTS

The final solution yielded four scales with a total of 18 items to measure organizational leadership for health promotion. Initial item loadings on all components for each of the original 33 items are presented in Table 1. Eleven and four items respectively were trimmed in the initial and second PCA analyses (see highlighted items in Tables 1 and 2) based on the parameters outlined above. That is, items with loading differences of less than 0.20 on more than one component were not retained except where content validity was threatened.

[Insert Tables 1 and 2 about here]

Table 1 – Organizational Leadership for Health Promotion Scales – First Analysis Component Pattern for Item Loadings after Varimax Rotation (N=144)

Items (33)	Components				
	C1	C2	C3	C4	C5
Component 1 (10 Items): The organization-					
-Has Mutual adjustments between departments	.74				
-Engages in inter-organizational learning	.72				
-Has Participative policy-making	.72		.31		
-Has a learning culture and climate	.65		.32		
-Has open information systems	.64				.32
-Rewards people for a variety of innovative and broad activities	.61			.43	
-Seeks leadership from all levels of org.	.55	.33	.38		
-Is always looking for ways to do things better	.56	.41	.40		
-Management uses clear polices, close monitoring and control of activities	**.44**			**.41**	
-We have a broad concept of information	**.43**	**.43**	**.41**		
Component 2 (7 Items):					
-Vision is continually updated based on changes in the environment		.73			
-Vision is based on our collective efforts		.68	.37		
-Processes for group decision making	**.51**	**.64**			
-Policies, programs and budgets reflect the values and principles of wellness model	.35	.58		.33	
-Process in place to evaluate past decisions	**.56**	**.57**			
-We devote adequate time to long-range planning	.35	.55		.36	
-Processes are in place for Board to engage in self evaluation	**.34**	**.50**			
Component 3 (10 Items):					
-People care about one another			.78		
-Success in resolving conflicts	**.32**		**.60**	**.50**	
-Honesty and trustworthiness characterize our relationships		.42	.58		
-Our work is consistent with our values		**.52**	**.56**		
-In conflict situations, we are encouraged to openly and honestly discuss the issues			**.53**	.47	
-We are quick to change to meet challenges in our environment	.32	.34	.54	.34	
-We are encouraged to critically reflect on our work	.40	.32	.53		
-Openly share information & resources among staff and departments	**.33**		**.50**	**.48**	
-Employees take into account the vision & strategies of the organization as they plan/execute their work		**.44**	**.45**		**.40**
-Leaders are characterized by a responsive and accessible style	**.42**	**.37**	**.42**	**.33**	
Component 4 (3 Items):					
-It is easy to get timely information about issues, activities & processes that affect how we do our work				.82	
-We examine potential effect of programs & policies on different population groups	.39	.37		.54	
-We have well understood expectations & strategies for how we communicate internally and externally		.40	.33	.52	
Component 5 (3 Items):					
-Have professional development policies					.81
-Professional development efforts sufficient to met our needs					.80
-Opportunities are provided for individuals to develop, personally and professionally			.42		.63
Max. % of Total Variance	18.3	14.9	14.1	10.5	8.3
Eigenvalue	6.04	4.92	4.67	3.45	2.74

Note: Bolded Items are trimmed in the subsequent PCA (2nd)

Table 2 – Organizational Leadership for Health Promotion Scales: Second Analysis. Component Pattern for Item Loadings after Varimax Rotation (N=144)

Items (22)	Components			
	C1	C2	C3	C4
Component 1 (6 Items):				
The organization-				
-Has Mutual adjustments between departments	.77			
-Engages in inter-organizational learning	.73	.31		
-Rewards people for a variety of innovative and broad activities	.69	.38		
-Has open information systems	.66		.31	
-Has Participative policy-making	.65		.48	
-Has a learning culture and climate	.65	.31	.41	
Component 2 (7 Items):				
-It is easy to get timely information about issues, activities & processes that affect how we do our work	.32	.72		
-Vision is continually updated based on changes in the environment		.68	.33	
-Vision is based on our collective efforts		**.65**	**.51**	
-We have well understood expectations & strategies for how we communicate internally and externally	.33	.64		
-We devote adequate time to long-range planning	.34	.63		
-We examine potential effect of programs & policies on different population groups	.46	.61		
-Policies, programs and budgets reflect the values and principles of wellness model	.32	.59	.38	
Component 3 (6 Items):				
-People care about one another			.69	
-We are encouraged to critically reflect on our work			.67	.50
-Honesty and trustworthiness characterize our relationships		.46	.62	
-Is always looking for ways to do things better	**.43**		**.60**	
-We are quick to change to meet challenges in our environment	**.30**	**.45**	**.56**	
-Seeks leadership from all levels of org	**.47**		**.55**	
Component 4 (3 Items):				
-Have professional development policies				.82
-Professional development efforts sufficient to met our needs				.81
-Opportunities are provided for individuals to develop, personally and professionally			.43	.66
Max. % of Total Variance	19.8	18.6	17.6	10.9= 66.9%
Eigenvalue	4.36	4.09	3.88	2.39

Note: Bolded Items are trimmed in the subsequent PCA (3rd)

The final four leadership components are displayed in Table 3, which lists the respective items for each scale with its percent variance and eigenvalue, as well as the cross-loadings and alpha if item deleted for all 18 items. Two items with less than 0.20 loading difference on opposing components were retained due to their content: *"We examine the potential effect of our programs and policies on different population groups"* in component L2 "Wellness Planning" and *"Honesty and trustworthiness characterize our relationships"* in component L3 "Workplace Milieu". Loadings for all four leadership scales ranged from 0.61 to 0.83 and together accounted for 68.4 % of the variance. Internal consistency of these scales as measured by Chronbach's alpha ranged between 0.79 and 0.91.

[Insert Table 3 about here]

Pearson correlation coefficient testing of the scales revealed a bivariate, component score correlation range of 0.50 to 0.75, significant at the 0.01 level (2-tailed). Table 4 displays these component score inter-correlations together with scale statistics for each leadership component, including its mean, standard deviation, number of items, and alpha.

[Insert Table 4 about here]

Table 3 – Scales for Organizational Leadership for Health Promotion-Pattern for Final Items: Loadings after Varimax Rotation (Alpha if Item Deleted)

Items (18)	Scales			
	C1 Practices for Org. Learning (α = .91)	C2 Wellness Planning (α = .86)	C3 Workplace Milieu (α = .79)	C4 Org. Member Development (α = .80)
Component 1 (6 Items):				
The organization-				
-Has mutual adjustments between departments	.81 (.89)			
-Engages in inter-organizational learning	.75 (.89)	.32		
-Rewards people for a variety of innovative and broad activities	.69 (.90)	.38		
-Has open information systems	.69 (.89)			
-Has participative policy-making	.69 (.89)		.37	
-Has a learning culture and climate	.68 (.89)	.34		
Component 2 (6 Items):				
-It is easy to get timely information about issues, activities & processes that affect how we do our work		.77 (.84)		
-Vision is continually updated based on changes in the environment		.66 (.86)		
-Policies, programs and budgets reflect the values and principles of wellness model	.32	.65 (.84)		
-We have well understood expectations and strategies for how we communicate internally and externally	.34	.65 (.83)		
-We devote adequate time to long-range planning	.37	.62 (.83)		
-We examine potential effect of programs and policies on different population groups	.46	.61 (.83)		
Component 3 (3 Items):				
-People care about one another			.78 (.69)	
-Honesty and trustworthiness characterize our relationships		.50	.65 (.74)	
-We are encouraged to critically reflect on our work	.33		.64 (.73)	
Component 4 (3 Items):				
-Have professional development policies				.83 (.79)
-Professional development efforts sufficient to met our needs				.81 (.66)
-Opportunities are provided for individuals to develop, personally and professionally			.39	.68 (.74)
N=	129	118	127	129
Max. % of Total Variance	23.0	19.5	13.0	12.9 = 68.4%
Eigenvalue	4.14	3.51	2.35	2.33

Table 4 - Scale Statistics for Organizational Leadership for Health Promotion: Averaged Component Scores (N=144)

	C1 *n = 129*	C2 *118*	C3 *127*	C4 *129*
Inter-Correlations				
C1: Practices for Org. Learning	•			
C2: Wellness Planning	.75*	•		
C3: Workplace Milieu	.68*	.67*	•	
C4: Org. Member Development	.54*	.50*	.55*	•
Mean	2.85	2.78	3.33	3.06
SD	0.81	0.77	0.77	0.82
No. Items	6	6	3	3
Reliability (α)	.91	.86	.79	.80

*Correlation is significant at the 0.01 level (2-tailed)

In summary, PCA extracted four components from the two original leadership scales (33 items), which measured respectively the current level of practices characteristic of organizational involvement in HP and the current level of practices for organizational learning. Thus, of the two original scales, the former 27-item scale was reduced to three subscales and the latter 6-item scale was confirmed. The resultant four components (i.e., four scales, 18 items), thought to reflect underlying processes of organizational leadership for health promotion, were examined for content and interpreted as *Practices for organizational learning*, *Wellness planning*, *Workplace milieu*, and *Organization member development*.

DISCUSSION

This study developed measures of organizational leadership for health promotion and tested their construct validity in the baseline AHHP Organizational Survey of the 17 RHAs in Alberta, Canada. Analyses indicate that the organizational leadership scales have good content and construct validity, which can be attributed to the strength of the face and content validity processes undertaken by other Canadian provincial heart health initiatives such as those in Saskatchewan, Ontario, and Nova Scotia. Specifically, PCA results supported the unidimensionality of the scales with good to high internal consistency (Oppenheim, 1992). Pearson's correlation coefficients for the majority of the components reflected moderate positive relationships, thus further supporting the distinctness of the scales. One coefficient above the upper limit (i.e., 0.70; Tabachnick & Fidell, 1996) however was accepted given the developmental nature of these measures, preserving scale content validity at the expense of scale collinearity (Tabachnick & Fidell, 1996). This study contributes to the literature in that few instruments (Hawe et al., 2000) of this type have published psychometric data in this area.

From a theoretical perspective, these four leadership components relate to Day's (2001) conceptualizations on leadership, which propose that complex organizations require both individual leader development as well as collective leadership development linked to a broader organizational strategy. That is, within the adoption of a strategic focus on addressing widespread heart health-related morbidity and mortality in Alberta's RHAs, the components of (L1) *"Practices for Organizational Learning"*, (L2) *"Wellness Planning"*, (L3) *"Workplace Milieu"*, and (L4) *"Organization Member Development"* can contribute to creating organizational conditions that foster health promotion actions on this organizational imperative. Specifically, items in each of L1, L2, and L3 relate to interpersonal processes which foster organizational learning, planning for wellness, and a workplace environment that supports positive relations and reflective practice; while L4 addresses individual development at both a personal and professional level. All of these can be used to test relationships with RHA action on population heart health. Moreover, measurement of these four components could thus assist in the testing of theoretical suppositions related to leader and leadership development in complex organizations such as RHAs. The four components can also be linked to Yukl and Van Fleet's (1992) notion of leadership as a process of influencing organizational members to action on organizational goals. That is, interventions related to building capacity for leadership in health care contexts could be tested in terms of specific processes (i.e., these four components) and actions on stated HP/HHP goals.

The organizational leadership for HP components also relate to Marion and Uhl-Bein's supposition (2001) on the basis of complexity theory, that emergent structures (i.e., innovations) in and between systems are produced by a combination of microdynamic and macrodynamic forces. That is, these four components can be seen as part of microdynamic forces in and between organizations such as RHAs in which interactions between individuals in various parts of their systems and sub-systems lead to bottom-up innovations (i.e., emergent structures) on heart health. Further, via the development of organizational practices suggested by the four leadership components, executive level leadership, as described by these authors, can be seen as enabling RHA organizational conditions which support such emergent structures (i.e., heart health innovations) to evolve. Based on this premise, member leaders developed in such conditions at various levels will be enabled to create innovations that address additional key public health issues through networks developed across RHAs via tools such as the Alberta Heart Health Project.

The leadership scales are therefore potentially useful for evaluating perceived organizational leadership for health promotion. The leadership scales can also be used in conjunction with scales of *will to act* and *infrastructure* to test theoretical models of organizational health promotion, as presented in the Alberta Model. Health service practitioners, administrators and board members who aim to increase organizational capacity to do health promotion may thus use the leadership scales of the AHHP Organizational Survey.

There are also a number of limitations and suggested directions for future research that must be considered. First, the leadership components are derived from a specific dataset with a modest sample size (n=144) and therefore may not be generalizable across all contexts. Additional analyses are required to examine instrument stability over other larger and dissimilar samples. Second, there may be artifacts related to the method of principal component analysis with multicollinearity issues arising in subsequent use of quantitative analyses such as regression techniques. Several authors suggest that consistent results using various methods of extraction and rotation reduce the problem of method artifact (Harris, 1985; Nunnally, 1978). Additional testing of the dataset as well as additional samples with other factorial analytic techniques is thus advised to replicate our findings. This strategy could be incorporated into test-retest and parallel forms testing of the stability of the instrument. Third, the survey approach to assessment of leadership at the organizational level limits score results to measurement of respondent perceptions and may also be limited by respondent ability to assess leadership at the organization-wide rather then dyadic leadership level. This query could be further illuminated by research approaches that compare the relationship of respondent ratings on RHA organizational leadership for HP with respondent ratings of the respondent's immediate supervisor. Discriminant validity testing could also be addressed via the use of a social desirability scale, given the possibility that respondents may answer in a socially desirable manner in order to protect their organization.

Finally, the complex and intricate environments of health care settings are difficult to assess from a purely quantitative perspective. Combined quantitative and qualitative research approaches are recommended to comprehensively examine organizational leadership for health promotion. Drawing from the strengths of each method to assist the utilization of the other can enable a more robust evaluation of the construct (Sieber, 1973). Such synergistic research perspectives are vital to advance knowledge on organizational leadership for health promotion through ongoing construct and criterion-related validity testing of these new measures together with in-depth qualitative exploration of associated contextual nuances.

With prudent consideration of the above issues, the developed measures may be used to identify influencing factors related to leadership for health promotion in health authorities and to support design of promising interventions in building capacity for heart health promotion actions. Additionally, the scales may be useful to researchers examining leadership for HP at different levels within organizations as well as tracking changes in organizational leadership for HP over time. Last, researchers can use the leadership measures to test suppositions, for example, with respect to the dimensions of will to act and infrastructure and RHA capacity for HP/HHP actions per the Alberta Model.

In conclusion, the development of these organizational leadership measures is an important step in the design of capacity assessment instruments and enables evaluation of key relationships in developing health sector capacity for health promotion. Evidence related to organizational leadership for health promotion and such capacity building can ultimately assist health care practitioners, administrators and board members to address serious population health issues such as CVD-related morbidity and mortality.

FOOTNOTES

[1] Issued on the occasion of the Third International Conference on Heart Health held in Singapore, the Singapore Declaration has had a clear influence on the conceptualization and operationalization of capacity for health promotion in most Canadian heart health projects (O'Loughlin, Elliott, Cameron, Eyles, Harvey, Robinson & Hanusaik, 2001).

[2] The "Capacity for Organizational Learning Checklist" was developed by Hawe and colleagues (2000) as an indicator of health promotion capability in organizations. It was tested for face validity, inter-rater reliability and internal consistency with a sample of health promotion practitioners in 130 HP projects across New South Wales, Australia (Hawe, King, Noort, Jordens & Lloyd, 2000).

REFERENCES

Alberta Health. (1997). *The Alberta Heart Health Evaluation Report*. Edmonton, AB: Author.

Anderson, D., Plotnikoff, R., Raine, K., Cook, K., Smith, C. & Barrett, L. (under review). The development of scales to measure "will" to promote heart health within health organizations. Alberta Heart Health Project, University of Alberta, Edmonton, Canada.

Argyris, C. & Schon, D.A. (1978). *Organizational Learning: A theory of action perspective*. Reading, MA: Addison-Wesley.

Argyris, C. & Schon, D.A. (1996). *Organizational Learning II*. Reading, MA: Addison-Wesley.

Bass, B.M. (1985). *Leadership and Performance Beyond Expectations*. New York: Free Press.

Bass, B.M. (1990). From transactional to transformational leadership: learning to share the vision. *Organizational Dynamics*, 18 (3), 19-31.

Bass, B.M. & Avolio, B.J. (1989). *Manual for the Multifactor Leadership Questionnaire*. Palo Alto, CA: Consulting Psychologists Press.

Carless, S. (1998). Assessing the discriminant validity of transformational leader behaviour as measured by the MLQ. *Journal of Occupational and Organizational Psychology*, 71 (4), 353-358.

Case, R. (1998). Leader member exchange theory and sport: Possible applications. *Journal of Sports Behavior*, 21 (4), 387-394.

Catford, J. (1997). Developing leadership for health: Our biggest blindspot. *Health Promotion International*, 12 (1), 1-4.

Cattell, R.B. (1966). The scree test for the number of factors. *Multivariate Behaviour Research*, 1, 245-276.

Chang, R. (2001). Turning into organizational performance. *Training & Development, May.* Retrieved November 22,2001 from: http://www.findarticles.com/cf_0/m4467/5_55/74830042/print.jhtml

Day, D.V. (2001). Leadership development: A review in context. *Leadership Quarterly*, 11 (4), 581-613.

Den Hartog, D., Van Muijen, J. & Koopman, P. (1997). Transactional versus transformational leadership: An analysis of the MLQ. *Journal of Occupational and Organizational Psychology*, 70, 19-34.

Fields D. & Herold, D. (1997). Using the Leadership Practices Inventory to measure transformational and transactional leadership. *Educational and Psychological Measurement*, 57 (4), 569-579.

Gabriel, Y. (1997). Meeting god: When organizational members come face to face with the supreme leader. *Human Relations*, 50 (4), 315-333.

Gardner, W. & Avolio, B. (1998). The charismatic relationship: a dramaturgical perspective. *Academy of Management Review*, 23 (1), 32-58.

Gronn, P. (1999). Substituting for leadership: The neglected role of the leadership couple. *Leadership Quarterly*, 10 (1), 41-62.

Gronn, P. (2002). Distributed leadership as a unit of analysis. *Leadership Quarterly*, 13, 423-451.

Hall, D.T. & Seibert, K.W. (1992). Strategic management development: Linking organization strategy, succession planning, and managerial learning. In D. H. Montross & C. J. Shinkman (Eds.), *Career development: Theory and practice* (pp. 255-275). Springfield, IL: Charles C. Thomas.

Hallam. S. (2001). *Leadership Matters: Research about leadership is important*. Retrieved November 22, 2002 from: http://www.uakron.edu/cba/lead/tools.html

Hancock, T. (1993). The evolution, impact and significance of the healthy cities/healthy communities movement. *Journal of Public Health Policy*, Spring, 5-18.

Harris, J.H. (1975). *A Primer of Multivariate Statistics*. New York: Academic Press, Inc.

Hawe, P., King, L., Noort, M., Jordens, C. & Lloyd, B. (2000). *Indicators to help with capacity building in health promotion*. Retrieved December 2, 2001 from: http://www.health.nsw.gov.au/public-health/health-promotion/pdf/indicators/capbuild.pdf

Hawe, P., Noort, M., King, L. & Jordens, C. (1997). Multiplying health gains: The critical role of capacity building within health promotion programs. *Health Policy*, 39, 29-42.

Howell, J. & Dorfman, P. (1986). Leadership and substitutes for leadership among professional and nonprofessional workers. *Journal of Applied Behavioral Science*, 22 (1), 29-46.

House, R.J. & Podsakoff, P.M. (1994). Leadership effectiveness: past perspectives and future directions for research. In: J. Greenberg (Ed.), *Organizational behavior: the state of the science* (pp. 45-82). Hillsdale, NJ: Lawrence Erlbaum Associates.

Kaplan, A. (1994). *Leadership and Management*. Retrieved August 19, 2000 from: http://www.cdra.org.za/publications/various_articles.

Kaplan, R. (1990). Character change in executives as "re-form" in the pursuit of self-worth. *Journal of Applied Behavioral Science*, 26 (4), 461-481.

Kerr, S. & Jermier, J. (1978). Substitutes for leadership: Their meaning and measurement. *Organizational Behavior and Human Performance*, 22, 375-403.

Kets de Vries, M. (1994). The leadership mystique. *Academy of Management Executive*, 8 (3), 73-92.

Kirkpatrick, S. A. & Locke, E. A. (1991). Leadership: do traits matter? *Academy of Management Executive*, 5 (2), 48-60.

Kotter, J.P. (1982). *The General Managers*. New York: MacMillan Free Press.

Latham, G.P. & Seijts, G.H. (1998). Management development. In P. J. D. Drenth, H. Thierry & Associates (Eds.), *Handbook of work and organizational psychology*, vol. 3, 2nd ed. (pp. 257-272). Hove, UK: Psychology Press/Erlbaum.

Marion, R. & Uhl-Bien, M. (2001). Leadership in complex organizations. *The Leadership Quarterly*, 12, 389-418.

Minkler, M. (1998). Introduction and overview. In M. Minkler (Ed.), *Community organizing & community building for health* (ch.1, pp. 3-19). New Brunswick, NJ: Rutgers University Press.

Mintzberg, H. (1973). *The Nature of Managerial Work*. New York: Harper & Row.

Mosley, A. (1998). A behavioral approach to leadership: Implications for diversity in today's organizations. *Journal of Leadership Studies*, 5 (1), 38-46.

Nirenberg, J. (1993). *The Living Organization: Transforming teams into workplace communities*. San Diego: Pfeiffer & Co.

Nirenberg, J. (2001). What leadership crisis? *Across the Board: The Business Knowledge Network*, September/October. Retrieved November 21, 2001 from: http://www.conference-board.org/atb/article/nirenbergSeptoct01.cfm

Noel, A. (1989). Strategic cores and magnificent obsessions: Discovering strategy formation through daily activities of CEOs. *Strategic Management Journal*, 10 (special issue), 33-49.

Norusis, M. & SPSS Inc. (1993). *SPSS for Windows: Professional Statistics, Release 6.0.* Chicago, IL: SPSS Inc.

Nunnally, J.C. (1978). *Psychometric Theory*. New York, NY: McGraw-Hill.

O'Loughlin, J., Elliott, S.J., Cameron, R., Eyles, J., Harvey, D., Robinson, K. & Hanusaik, N. (2001). From diversity comes understanding: Health promotion capacity-building and dissemination research in Canada. *Promotion & Education,* September Supplement, 40-43.

Oppenheim, A.N. (1992). *Questionnaire Design, Interviewing and Attitude Measurement*. New York, NY: St. Martin's Press.

Pearson, T.A., Shankle Bales, V., Blair, L., Emmanuel, S.C., Farquhar, J.W., Low, L.P., MacGregor, L.J., MacLean, D.R., O'Connor, B., Pardell, H. & Petrasovits, A. (1998). The Singapore declaration: Forging the will for heart health in the next millennium. *CVD Prevention* 1, 182-199.

Pillai, R. & Meindl, J.R. (1998). Context and charisma: a "meso" level examination of the relationship with organic structure, collectivism, and crisis to charismatic leadership. *Journal of Management,* 24 (5), 643-662.

Pipe, A. (1995). Cardiovascular disease prevention: Talking occurs at all levels - does understanding? *Canadian Journal of Cardiology*, 11 (Suppl A: January), 2A-3A.

Pitner, N. (1988). Leadership Substitutes: Their factorial validity in educational organizations. *Educational and Psychological Medsurement*, 48, 307-315.

Plotnikoff, R.C. (1994). An application of protection motivation theory to coronary heart disease risk factor behaviour in three Australian samples: Community adults, cardiac patients, and school children. Unpublished doctoral dissertation, University of Newcastle, Newcastle, Australia.

Plotnikoff, R.C., Anderson, D., Raine, K., Cook, K. & Barrett, L. (under review). Scale development of individual and organization infrastructure for heart health promotion in Regional Health Authorities. Alberta Heart Health Project, University of Alberta, Edmonton, Canada.

Podsakoff, P. & MacKenzie, S. (1995). An examination of substitutes for leadership within a levels-of-analysis framework. *Leadership Quarterly*, 6 (3), 289.

Podsakoff, P. & MacKenzie, S. (1997). Kerr and Jermier's substitutes for leadership model: Background, empirical assessment, and suggestions for future research. *Leadership Quarterly*, 8 (2), 117-132.

Podsakoff, P., MacKenzie, S. & Bommer, W. (1996). Transformational leader behaviors and substitutes for leadership as determinants of employee satisfaction, commitment, trust, and organizational citizenship behaviors. *Journal of Management*, 22 (2), 259-298.

Podakoff, P.M., Niehoff, B.P., MacKenzie, S.B. & Williams, M.L. (1993). Do substitutes for leadership really substitute for leadership? An empirical examination of Kerr and Jermier's situational leadership model. *Organizational Behavior and Human Decision Processes*, 54 (1), 1-44.

Pool, S.W. (1997). The relationship of job satisfaction with substitutes of leadership, leadership behavior, and work motivation. *Journal of Psychology*, 131 (3), 271-283.

Posner, B.Z. & Kouzes, J.M. (1988). Development and validation of the leadership practices inventory. *Educational and Psychological Measurement*, 48, 483-496.

Posner, B.Z. & Kouzes, J.M. (1993). Psychometric properties of the leadership practices inventory—updated. *Educational and Psychological Measurement*, 53, 191.

Raine-Travers, K., Dyck, R., McLaughlin, K., Collins-Nakai, R., Ness, K., Plotnikoff, R. & Dressendorfer, R. (September, 1999). *The Alberta Heart Health Project Dissemination Phase - Heart health promotion knowledge transfer and uptake: An examination of organizational capacity building and its impact on health promotion actions.* (Available from the Alberta Heart Health Project office, Centre for Health Promotion Studies, University of Alberta, Edmonton, Canada.)

Rogers, E.M. (1995). *Diffusion of Innovations (4th ed.).* New York: Free Press.

Schriesheim, C.A. (1997). Substitutes-for-leadership theory: development and basic concepts. *Leadership Quarterly*, 8 (2), 103-108.

Schriesheim, C., Neider, L., Scandura, T. & Tepper, B. (1992). Development and preliminary validation of a new scale (LMX-6) to measure leader-member exchange in organizations. *Educational and Psychological Measurement*, 52, 135-147.

Senge, P.M. (1990). *The Fifth Discipline - The Art and Practice of the Learning Organization*. New York, NY: Doubleday.

Shamir, B., Zakay, E., Breinin, E. & Popper, M. (1998). Correlates of charismatic leader behavior in military units: Subordinates' attitudes, unit of characteristics, and superiors' appraisals of leader performance. *Academy of Management Journal*, 41 (4), 387-409.

Sieber, S.D. (1973). The integration of fieldwork and survey methods. *American Journal of Sociology*, 78 (6), 1335-1359.

Simon, H.A. (1969). *Sciences of the Artificial*. Cambridge, MA: MIT Press.

Smith, C., Raine, K., Anderson, D., Dyck, R., Plotnikoff, R., Ness, K. & McLaughlin, K. (2001). A preliminary examination of organizational capacity for heart health promotion in Alberta's regional health authorities. *Promotion & Education*, September Supplement, 40-43.

Tabachnick, B. & Fidell, L. (1996). *Using Multivariate Statistics*, 3rd Edition. New York, NY: HarperCollins.

Tepper, B. & Percy, P. (1994). Structural validity of the Multifactor Leadership Questionnaire. *Educational and Psychological Measurement*, 54 (3), 734-744.

Thorndike, R.L. (1982). *Applied Psychometrics*. Boston, MA: Houghton Mifflin.

Tosi, H. & Kiker, S. (1997). Commentary on "Substitutes for Leadership." *Leadership Quarterly*, 8 (2), 109-112.

Vaill, P. (2000). Introduction to spirituality for business leadership. *Journal of Management Inquiry*, 9 (2), 115-116.

Walman, D. & Yammarino, F. (1999). CEO charismatic leadership: levels-of-management and levels-of-analysis effects. *Academy of Management Review*, 24 (2), 266-299.

Wayne, S., Shore, L. & Liden, R. (1997). Perceived organizational support and leader-member exchange: a social exchange perspective. *Academy of Management Journal*, 40 (1), 82-111.

Wilhelm, C. Herd, A. & Steiner, D. (1993). Attributional conflict between managers and subordinates: An investigation of leader-member exchange effects. *Journal of Organizational Behavior*, 14, 531-544.

Witte, K. (1993). Managerial style and health promotion programs. *Social Science & Medicine*, 36 (3), 227-238.

World Health Organization. (2002). *The World Health Report 2002*. WHO: Author. Retrieved November 2, 2002 from: http://www.who.int/whr/2002/en/

World Health Organization. (1998). *The Jakarta Declaration on Leading Health Promotion into the 21st Century: Fourth Annual Conference on Health Promotion.* WHO: Author

World Health Organization, Coronary Prevention Group. (1992). *Prevention of Cardiovascular Disease – Recommendations for National Governments.* Technical report.

Yukl, G. (1998). *Leadership in Organizations,* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Yukl, G. (1999). An evaluative essay on current conceptions of effective leadership. *European Journal of Work and Organizational Psychology,* 8 (1), 33-48.

Yukl, G. & Van Fleet, D. (1992). Theory and research on leadership in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (pp. 147 –197). Palo Alto, CA: Consulting Psychologists Press.

CHAPTER THREE — PAPER TWO

Organizational Leadership and its Relationship to Regional Health Authority Actions to Promote Health

L.L. Barrett,[1] R.C. Plotnikoff,[1,2] & K. Raine[1,2]

[1]Centre for Health Promotion Studies, University of Alberta, Canada

[2]Alberta Heart Health Project, University of Alberta, Canada

ABSTRACT

This study, conducted on the baseline dataset (n=144) of the Alberta Heart Health Project: Dissemination Phase, represents an uncommon effort to examine leadership at a collective organizational level. Through use of four previously developed measures of Perceived Organizational Leadership for Health Promotion (HP), it focused on leadership as a distributed entity within regional health authority (RHA) jurisdictions mandated to address the health of the population in the province of Alberta, Canada. First, examination of differentials between organizational levels (i.e., board members, middle/senior management and service providers) on ratings of the four leadership measures revealed significant differences. That is, board members tended to rate leadership components significantly ($p<.05$) higher than service providers and middle/senior managers from across all 17 RHAs. Second, regression analyses identified that the leadership measures *practices for organizational learning* and *wellness planning* were significantly ($p<.05$) positively associated with health authority actions on improving population heart health promotion (HHP). The presence of a *champion for HHP* and the leadership measures *workplace milieu* and *organization member development* were also significantly ($p<.05$) positively associated with health authority actions for health promotion. A subsidiary aim revealed significant ($r=0.39$ to 0.67; $p<.01$) low to moderate positive relationships of the dimensions of leadership, infrastructure and will to act with each other, as proposed by the Alberta Model on "organizational capacity building for HP". Implications for the findings of this research, study limitations, and recommended research directions are outlined.

INTRODUCTION

Regional health authority (RHA) leadership is fundamental to the development of interventions that effectively address public health issues at a community-wide level. That is, given their mandate within the province of Alberta, each RHA has accountability to promote and protect the health of the population within its respective geographical boundaries. The leading global cause of morbidity and mortality in the developed world, Alberta included, is cardiovascular disease (CVD) (Alberta Health, 1997; Pearson et al., 1998; World Health Organization, 1992 and 2002).

Advancement of knowledge on organizational leadership and its relationship to RHA capacity to promote health could, therefore, assist development of effective RHA interventions on health promotion in general, and heart health promotion (HHP) specifically. A recent study developed measures of organizational leadership for health promotion (HP) and defined four components for use in such investigations (Barrett, Plotnikoff, Raine & Anderson, under review). Examination of these four leadership components in relationship to RHA actions on HP/HHP could thus contribute valuable knowledge on building health authority capacity to effectively intervene on key public health issues, such as CVD.

Review of the Literature on Leadership

Leadership theory over the past century has evolved its primary views from earlier more simplistic approaches to models of greater sophistication, however, the tendency has been a general focus on the leader-follower interface; that is, the dyadic relationship of a formal leader with a subordinate or a leader and a group of subordinates (Hallam, 2001; Yukl & Van Fleet, 1992; Yukl, 1998). Some researchers have argued that Kerr and Jermier's (1978) original "Substitutes for Leadership Model" makes an important contribution to the conceptualization of leadership beyond interpersonal relationships with hierarchical leaders via its focus on aspects of the situation (i.e., characteristics of subordinate, task, and organization) (Podsakoff & MacKenzie, 1997; Tosi & Kiker, 1997). Other researchers have called for expansion of the concept of leadership beyond the leader-follower dyad and the small group levels of analyses (Gronn, 1999; Walman & Yammarino, 1999; Yukl, 1999).

Most recent theoretical approaches acknowledge the complexity of modern organizations (such as RHAs) and argue for a multi-dimensional approach to the study of leadership in the organization *as a whole* (Bass, 2000; Boal & Hooijberg, 2000, Gronn, 2002). Emergent notions posit that in order to build the leadership competence required for organizational learning and growth toward attainment of goals, organizational approaches are needed which involve both individual hierarchical leader development and collective organizational leadership development linked with each other and to a broader organizational strategy (Day, 2001; Hall & Seibert, 1992; Latham & Seijts, 1998). That is, strategic leadership of the organization and the development of the leadership potential of all organization members in relation to specific imperatives are required. Such leadership development assists organization members to relate, coordinate efforts, build commitment, and develop broader social networks through the application of personal self-understandings to organizational imperatives (Day, 2001). These recent conceptualizations therefore shift the focus on investigation of leadership from a preoccupation with the leader-follower interface to a broader focus on the organization as a whole and on interpersonal processes across the organization, which influence actions for goal attainment (Day, 2001; Nirenberg, 2001; Yukl & Van Fleet, 1992; Yukl, 1998). Hierarchical leadership *of* the organization (i.e., at a strategic or executive level) is thus conceptualized as enabling, catalyzing, or facilitating such organizational actions rather than directing them, given the complexity of modern organizations and the impracticality of the controlling approach in such contexts (Marion & Uhl-Bien, 2001). Leadership *within* the organization is then seen as being distributed across levels, including informal and formal roles, in a collective organization-wide perspective (Boal & Hooijberg, 2000; Gronn, 2002).

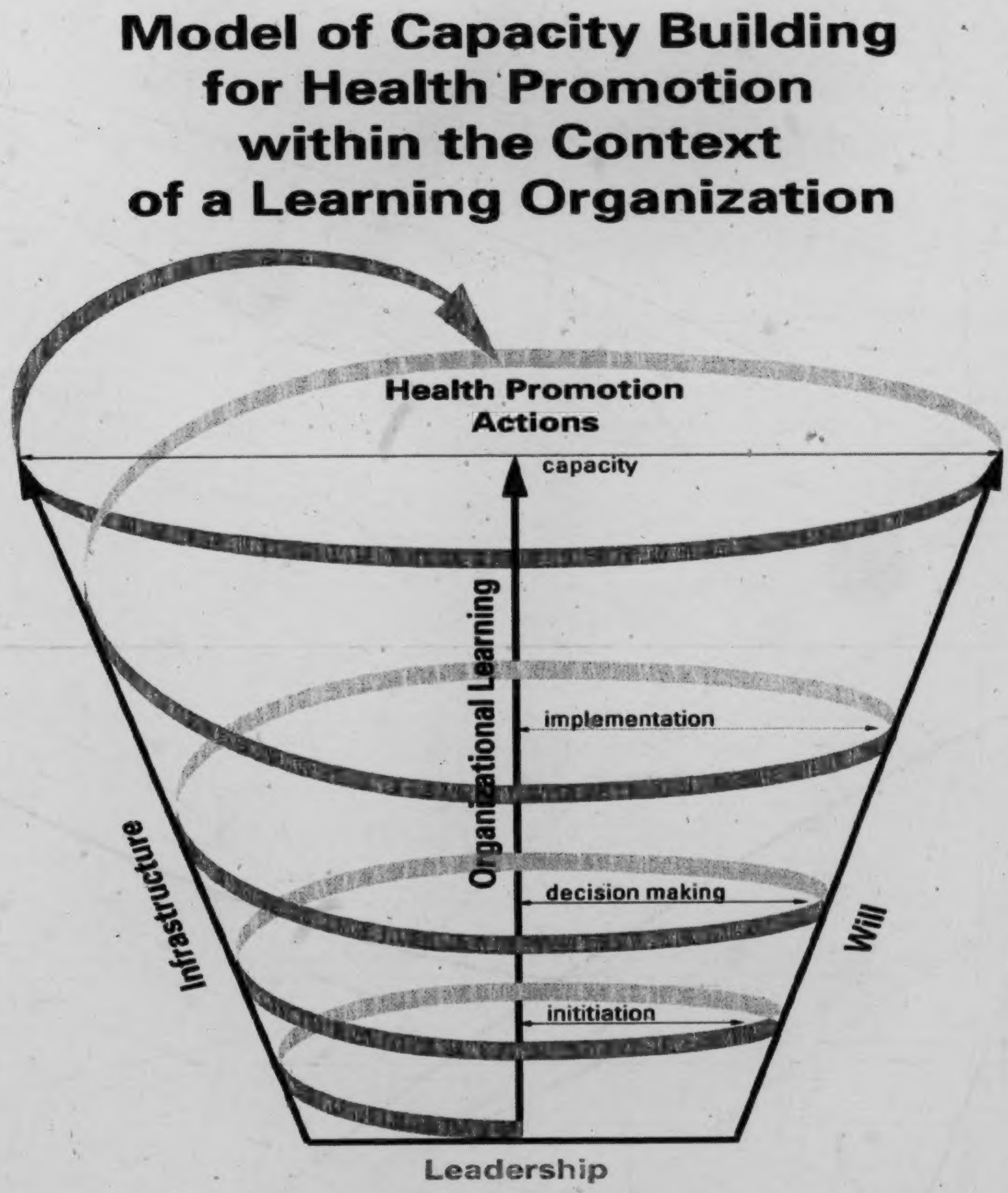
While there is a large body of literature on leadership, there is a dearth of research based on these contemporary holistic conceptualizations. Moreover, limited research (Witte, 1993) is found on organizational leadership with a focus on health promotion, either in the health care sector in relation to patients and families or more generally with a focus on workplace health in public, voluntary, or private sectors.

Study Context

The current study examines collective organizational leadership for health promotion within the baseline *Organizational Capacity Survey* of regional health authorities in the Alberta Heart Health Project: Dissemination Phase (AHHP). Over the course of five years and within the context of RHAs as learning and continuously changing organizations, the AHHP is exploring the process of building capacity for health promotion in the 17 regional health authorities of Alberta, (Smith et al., 2001).

The project incorporates conceptualizations articulated in the 1998 Singapore Declaration for Heart Health Promotion (Pearson et al., 1998) on the creation of capacity for health promotion action. A key overarching theme in the Declaration is the delineation of *infrastructure* and *will to act* as the two pivotal dimensions of capacity. Building on the above notions, the AHHP has reconceptualized the work of the Declaration to include leadership as a key catalytic force in capacity building (see Figure 1). Within the Alberta Model, *leadership* is thus depicted as the basis upon which the development of capacity rests. Consistent with the Singapore Declaration, *will to act* and *infrastructure* are the pillars of capacity. The spiral in the model depicts Rogers' (1995) stages of diffusion of innovations within organizations, shown as a nonlinear progression of learning for organizational change. The ultimate outcome of capacity building is increased health promotion actions in general (Hawe, Noort, King & Jordens, 1997). Leadership is therefore conceptualized as driving change by the development of an organization's will to act and the creation of an infrastructure to enhance its capacity for HP/HHP actions.

[Insert Figure 1 about here]



Model of Capacity Building for Health Promotion within the Context of a Learning Organization

Figure 1 – The Alberta Model: Building Organizational Capacity for Health Promotion (Source: Alberta Heart Health Project, 1999)

Defining Organizational Leadership for Health Promotion

In response to an apparent dearth of research literature related to the measurement of leadership at an organizational level within the health sector, a recent study established the psychometric robustness of four components of collective organizational leadership for health promotion within the 17 RHAs of Alberta (Barrett et al., under review). Specifically, factorial analytic and other psychometric techniques yielded evidence of the construct validity and reliability of *organizational leadership for HP* scales: (a) practices for organizational learning, (b) wellness planning, (c) workplace milieu, and (d) organization member development. This study defines leadership within the strategic imperative of health promotion and heart health promotion. It builds on the work of: Hawe et al. (1997) on multiplying health gains; Hawe, King, Noort, Jordens & Lloyd (2000) on indicators to help with capacity building in health promotion; and on the views of Yukl and Van Fleet (1992) that organizational leadership is defined as a multi-dimensional process.

Organizational leadership for HP/HHP is defined as a multi-dimensional process in which members, across multiple levels, exert influence on:

a) The development of heart health promotion objectives and action strategies,
b) The implementation of action strategies to achieve heart health objectives,
c) Organizational practices which strengthen group involvement and commitment to ongoing health promotion efforts, and
d) The development of a learning culture to sustain up-to-date health promotion actions by the organization.

Differing Perspectives within an Organization

Given the above definition and its focus on the *influence* of multiple members in processes that enhance RHA capacity for HP/HHP actions, it is important to examine organizational member differences in relation to leadership. In fact, the internal complexity of modern contexts (Bass, 2000; Yukl, 1999) make it essential to consider differing organizational perspectives when studying RHA leadership for HP.

Several authors propose theory about organizational levels within such complexity (Kouzes & Mico, 1979; Schein, 1992). In domain theory (Kouzes & Mico, 1979), public or human service organizations are viewed as distinctly different from the private sector. Public organizations are seen as being dominated by three domains: (1) policy domain, (2) management domain, and (3) service domain. In application to RHAs, the policy domain includes board members, the management domain is comprised of senior and middle managers, and a variety of health profession practitioners form the service domain.

Schein (1992) also proposes at least three different generic cultures between levels in a complex organization (such as an RHA): the executives, the engineers and the operators. The executives can be seen as senior/middle management, the engineers are those with specialized technical expertise, generally found within the middle layers of an organization and operators are frontline/professional workers (service practitioners). Alternatively, recent conceptualizations describe macro-level leadership and micro-level leadership and differentiate leadership *of* the organization versus leadership *in* the organization. In this view, the chief executive officer (CEO) and board levels provide leadership *of* the organization (i.e., macro or executive level leadership), while those at organizational levels below the CEO are considered to provide leadership *in* the organization (i.e., collective organizational leadership) (Boal & Hooijberg, 2000).

Thus, there may well be differences between organizational levels across Alberta's RHAs, particularly those with higher vs. lower capacity for HP as assessed by the baseline AHHP Organizational Capacity Survey. Enhanced understanding of these perspectives could contribute important information for strategic decision-making in the building of RHA capacity for HP/HHP. Moreover, examination of the relationship of leadership for HP with RHA actions on HP/HHP could advance knowledge about system capacity building for effective tackling of population health issues, such as CVD-related morbidity and mortality. Additional insights on health organization capacity building may also be gained through exploration of the relationships between leadership, will to act and infrastructure for HP actions per the Alberta Model.

The purpose of this study is therefore two-fold: (1) to examine components of collective organizational leadership for HP in relation to comparability (i) between RHA respondent groups (i.e., service practitioners, senior/middle management and board members) across Alberta RHAs and (ii) between respondent groups of both high and low HP capacity RHAs; and (2) to investigate the relationships of the four components of collective organizational leadership for HP with RHA actions for HP/HHP. In addition, a subsidiary investigation of the relationships of the global capacity dimensions of leadership, will to act and infrastructure per the Alberta Model will be conducted.

METHODS

Participants

In collaboration with the AHHP project coordinator in each RHA, a convenience sample of 158 representatives of three organizational levels across the 17 Regional Health Authorities in Alberta were identified to complete the AHHP Organizational Capacity Survey. The response rate was 91% (n=144) and included board members (n=30), senior/middle management (n=58), and service providers (n=56). Each respondent completed an individual assessment of perceived collective organizational leadership for HP/HHP. Respondents, in the majority, were females (85%) ranging in age from 40 to 49 years (M= 3.2, SD= .88). Study participants had worked an average of 4.5 years (SD= 4.4) in their current position.

Measures and analytic procedures for each of the study aims are described below. Statistical Package for Social Science version 10.0 (SPSS) was used for all calculations.

Measures

Study Aim One

The four leadership components validated in a previous study (Barrett et al., under review) were used to assess perceived collective organizational leadership for HP/HHP. These composite variables included *practices for organizational learning*, *wellness planning*, *workplace milieu*, and *organization member development* (Table 1 provides a listing of scale items). These developed measures were employed to examine score differences amongst organizational respondent level groups (i.e., board members, middle/senior managers, and service providers as described above) across all 17 RHAs and in both high and low HP capacity RHAs.

High and low HP capacity RHAs were determined using mean global organizational scores for *will to act*, *infrastructure*, and *leadership* respectively for each RHA (n=17) per the Alberta Model. That is, defined cut-off points for high, medium and low HP capacity RHAs were established based on the mean scores for each of these three dimensions of capacity.

[Insert Table 1 about here]

Study Aim Two

To investigate the relationships of the organizational leadership components with RHA actions for HP/HHP, multiple linear regression analyses were used to describe and identify path model associations of HP/HHP actions across all 17 Alberta RHAs. The following outlines the measures used in these different analyses.

Dependent Variables

Aggregated scores of RHA actions on a number of heart health and health promotion activities constituted the outcome variables tested in the path model analyses.

1. RHA *actions on health promotion* as assessed using self-assessment scores on organizational involvement over the past 12 months in health promotion activities related to (i) the Ottawa Charter generic action strategies (World

Table 1 – Components of *Organizational Leadership for Health Promotion*

L1-Practices for *Org. Learning (α =.91)	L2-Wellness Planning (α =.86)	L3-Workplace Milieu (α =.79)	L4-*Org. Member Development (α =.80)
The organization: •Has mutual adjustments between departments •Engages in inter-organizational learning •Rewards people for a variety of innovative and broad activities •Has open information systems •Has participative policy-making •Has a learning culture & climate	•It is easy to get timely information about issues, activities & processes that affect how we do our work •Vision is continually updated based on changes in the environment •Policies, programs and budgets reflect the values & principles of wellness model •We have well understood expectations & strategies for how we communicate internally and externally •We devote adequate time to long-range planning •We examine potential effect of programs and policies on different population groups	•People care about one another •Honesty and trustworthiness characterize our relationships •We are encouraged to critically reflect on our work	•We have professional development policies •Opportunities are provided for individuals to develop, personally & professionally •Professional development efforts are sufficient to met our needs

*Organizational (Org.)

Health Organization, 1987), (ii) assessment, (iii) planning, (iv) implementation, and (v) evaluation.

2. RHA *actions on heart health promotion* as measured by self-assessment scores on organizational involvement in such activities over the past 12 months. Based on the Determinants of Heart Health Model (see Figure 2: source Health Canada, 1993), HHP activities were assessed using scores on the following risks: (i) physiological factors, (ii) behavioural factors, (iii) psychosocial factors, and (iv) environmental conditions. In addition, RHA actions for HHP in the past 12 months were assessed using scores on involvement in various settings for each of the three behavioural risk factors (i.e., tobacco use, poor nutrition, and physical inactivity).
3. Three global outcome variables related to actions during the past 12 months by all 17 RHAs were also analyzed. These included: (i) aggregated scores of involvement in various settings on behavioural risk factors for HHP, (ii) aggregated scores of HP activities on assessment, planning, implementation and evaluation, and (iii) aggregated scores of actions on all heart health risk factors and conditions based on the Determinants of Heart Health Model.

[Insert Figure 2 about here]

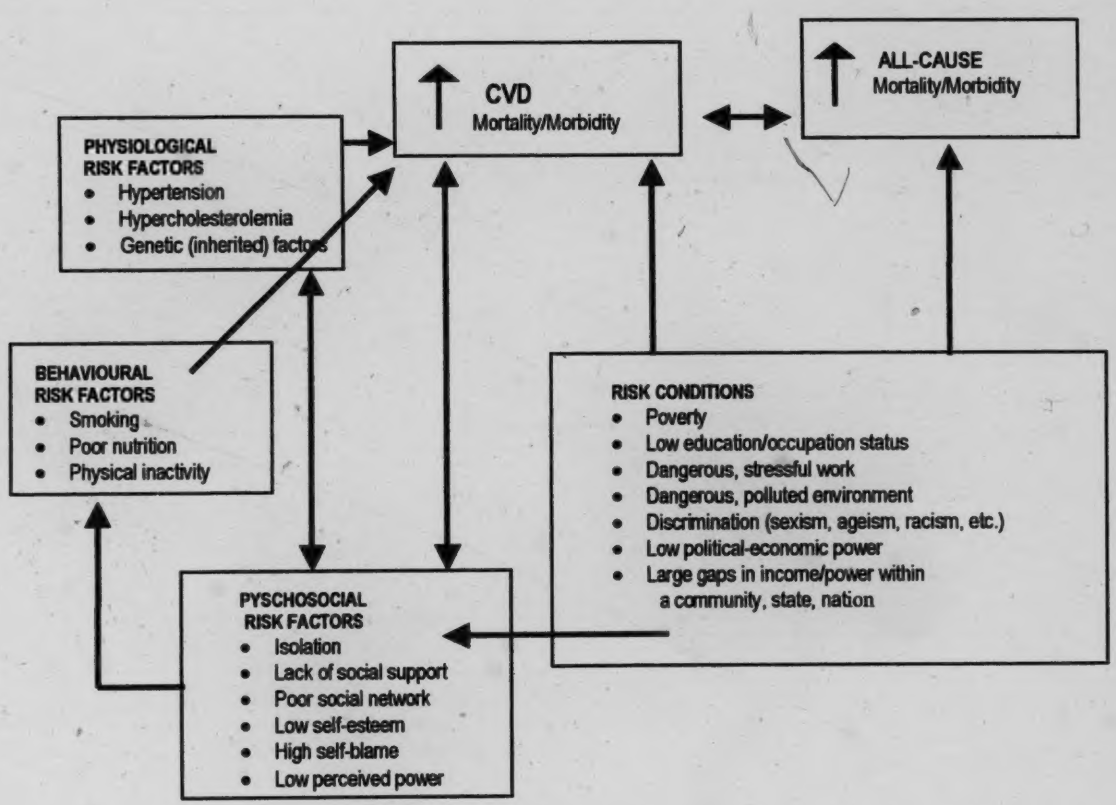

CVD
Mortality/Morbidity
ALL-CAUSE
Mortality/Morbidity
PHYSIOLOGICAL RISK FACTORS
Hypertension
Hypercholesterolemia
Genetic (inherited) factors
BEHAVIOURAL RISK FACTORS
Smoking
Poor nutrition
Physical inactivity
RISK CONDITIONS
Poverty
Low education/occupation status
Dangerous, stressful work
Dangerous, polluted environment
Discrimination (sexism, ageism, racism, etc.)
Low political-economic power
Large gaps in income/power within a community, state, nation
PYSCHOSOCIAL RISK FACTORS
Isolation
Lack of social support
Poor social network
Low self-esteem
High self-blame
Low perceived power

Figure 2 – Determinants of Heart Health Model
(Source: Health Canada, 1993)

Independent Variables

The four developed measures of organizational leadership for health promotion described above (see Table 1) were used in the path analyses to determine the relative association of each measure with RHA actions for HP and HHP. As typical major demographic variables, respondent *age* and *gender* were incorporated in each analysis. The pragmatic use of change agents such as a champion for HHP, are posited as an important influence in managing the politics of organizational change (Kumar & Thibodeaux, 1990). The presence of a *champion for HHP* was thus considered to be a variable that could have a direct or indirect effect on the criterion variables related to HP/HHP actions in the 17 RHAs and was therefore included in all equations. These background variables served to (1) adjust the results of the relationships between the leadership measures and the dependent variables and (2) examine their relationships with the leadership measures.

Subsidiary Study Aim

The relationships of the global measures of *leadership, will to act* and *infrastructure* per the Alberta Model were explored through the construction of composite variables for each of these three dimensions. That is, global variables were created through aggregated scores of: 1) 21 components of global *will to act* (Anderson, Plotnikoff, Raine, Cook, Smith & Barrett, under review), and 2) 12 components of global *infrastructure* (Plotnikoff, Anderson, Raine, Cook & Barrett, under review). The global *leadership* measure was created through aggregation of the four leadership components developed in our previous study (Barrett et al., under review).

Analyses

First, analysis for study aim one was conducted via one-way analysis of variance (ANOVA) procedures[1] to examine the relationship of the four leadership components between the three respondent level groups across the 17 RHAs. The ANOVAs were significant for three of the four leadership components: *Practices for Organizational Learning* [F (2) = 8.38, $p<0.000$], *Wellness Planning* [F (2) = 9.95, $p<0.000$] and *Organization Member Development* [F (2) = 5.15, $p<0.007$]. Therefore, Post Hoc comparisons using the Bonferroni[2] procedure were conducted to determine which group(s) differed.

Next, respondents in the four lowest (n= 31) and four highest (n= 31) scoring RHAs on global capacity for health promotion were identified. Comparisons of respondent level scores on the four leadership components in each of the two samples (i.e., high HP capacity and low HP capacity RHAs) were conducted using the Mann-Whitney U test. As this test revealed significant values ($p<0.05$) indicating that the two RHA samples have different locations for each of the four leadership components, respondent level scores on the four leadership components for each sample were then analyzed separately employing the Kruskal-Wallis Test. Because significant rating differences between levels were found for each sample, Kruskal-Wallis Ranks were then examined to determine the direction and respondent level group(s) that differed.

Second, study aim two comprised the following analytic procedures. Path analyses were undertaken using standardized regression equations to calculate the path coefficient for each equation in the investigation of the relationships of the collective organizational leadership components with RHA actions for HP/HHP. Figure 3 – Typical Path Diagram (Pedhazur, 1982) is the basis for Figure 4, which serves as the general framework for these analyses. The 19 dependent variables together with the independent variables tested in each equation are presented in Table 2. It describes the independent variables tested for each dependent variable in the series of standardized regression equations. Specifically, backward stepwise multiple regression analysis was used to establish the various associations between the dependent and independent variables. The 0.05 percent level was used to judge the significance of standardized partial regression coefficients (β coefficients). As well, collinearity diagnostics were performed, via examination of the correlation matrix of each equation of the model and conduction of tolerance tests, to verify that independent variables were not highly correlated amongst themselves. All pairs in these analyses were at satisfactory levels for regression analysis (r=0.665 or less) (Tabachnick & Fidell, 1996). After the regression equations were constructed, residuals of each equation were examined to confirm initial screening procedures of the variable.[3]

[Insert Figures 3 and 4 about here]

[Insert Table 2 about here]

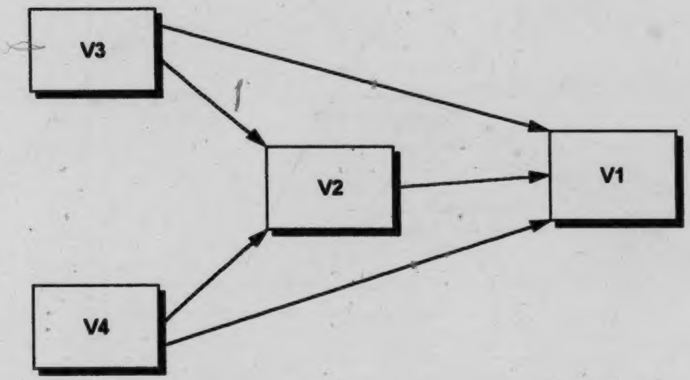


Figure 3 – Typical Path Diagram (Pedhazur, 1982)

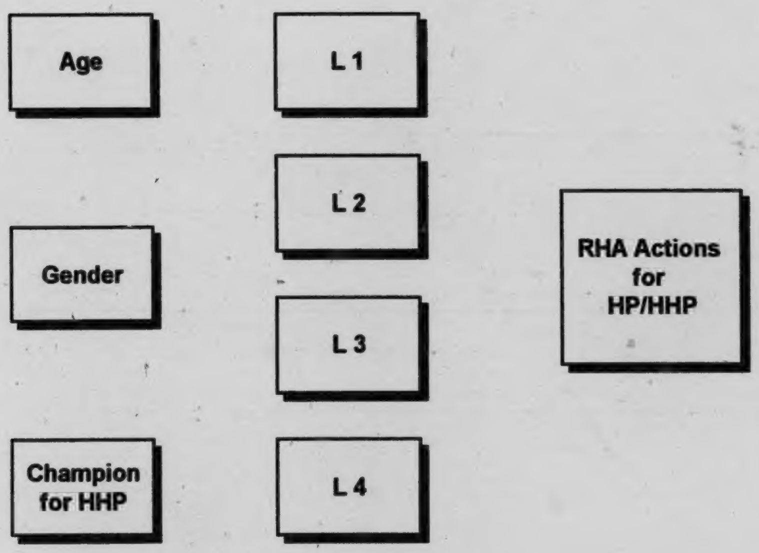


Figure 4 – General Model to Test Predictors of Health Promotion (HP) & Heart Health Promotion (HHP) Actions by Regional Health Authorities

Table 2 Organizational Leadership for Health Promotion Path Models: Regression Equations

No.	Dependent Variable	Independent Variables Tested for Equation
1.	L1 Practices for Organizational Learning	Age, Gender, Champion for HHP
2.	L2 Wellness Planning	Age, Gender, Champion for HHP
3.	L3 Workplace Milieu	Age, Gender, Champion for HHP
4.	L4 Organization Member Development	Age, Gender, Champion for HHP
5.	Ottawa Charter Action Strategies	L1, L2, L3, L4, Age, Gender, Champion for HHP
6.	HP Assessment Activities (A)	L1, L2, L3, L4, Age, Gender, Champion for HHP
7.	HP Planning Activities (P)	L1, L2, L3, L4, Age, Gender, Champion for HHP
8	HP Implementation Activities (I)	L1, L2, L3, L4, Age, Gender, Champion for HHP
9.	HP Evaluation Activities (E)	L1, L2, L3, L4, Age, Gender, Champion for HHP
10.	Aggregated Scores (APIE)	L1, L2, L3, L4, Age, Gender, Champion for HHP
11.	Physiological Factors	L1, L2, L3, L4, Age, Gender, Champion for HHP
12.	Behavioural Factors	L1, L2, L3, L4, Age, Gender, Champion for HHP
13.	Psychosocial Factors	L1, L2, L3, L4, Age, Gender, Champion for HHP
14.	Environmental Conditions	L1, L2, L3, L4, Age, Gender, Champion for HHP
15.	Aggregated Scores: Risk Factors & Conditions	L1, L2, L3, L4, Age, Gender, Champion for HHP
16.	Nutrition in (S, W, H, C, R, G)* settings	L1, L2, L3, L4, Age, Gender, Champion for HHP
17.	Tobacco Reduction in (S, W, H, C) settings	L1, L2, L3, L4, Age, Gender, Champion for HHP
18.	Physical Activity in (S, W, H, C) settings	L1, L2, L3, L4, Age, Gender, Champion for HHP
19.	Aggregated Scores: Behavioural Risk Factor actions in specific settings	L1, L2, L3, L4, Age, Gender, Champion for HHP

Note: 1) L1 Practices for Org. Learning L2 Wellness Planning
L3 Workplace Milieu L4 Org. Member Development

2) * S=schools; W=workplaces; H=health care settings; C=community at large; R=restaurants; and G=grocery stores

Finally, with regard to the subsidiary study aim, the relationships of the global measures of leadership, will to act and infrastructure per the Alberta Model were explored using Pearson's correlation coefficients. Composite variables were constructed for previously validated measures of *leadership, will to act* and *infrastructure* in the baseline Organizational Capacity Survey of the AHHP as described above. A correlation matrix was then produced to determine the preliminary relationships between the coefficients of each of these three global measures.[4]

RESULTS

Study Aim One

One-way ANOVA and post hoc (Bonferroni) comparisons revealed that *board members* rated three leadership components significantly higher compared to senior/middle managers and service providers (see Table 3). These components included: (L1) *Practices for Organizational Learning*, (L2) *Wellness Planning*, and (L4) *Organization Member Development*.

[Insert Table 3 about here]

Table 3 –Organizational Level[1] Differences in Regional Health Authorities on: ***Ratings of Organizational Leadership for Health Promotion***

Dependent Variable	(1) Level[1]	(2) Level[1]	Mean Difference (1 minus 2)	Sig.
L1: Practices for Org. Learning (n=129)	Board	M/S Mgrs	.60*	.005
		S/Provider	.76*	.000
	M/S Mgrs	S/Provider	.16	.861
L2: Wellness Planning (n=118)	Board	M/S Mgrs	.72*	.000
		S/Provider	.68*	.001
	M/S Mgrs	S/Provider	-.04	1.000
L3: Workplace Milieu (n=127)	Board	M/S Mgrs	.38	.132
		S/Provider	.37	.154
	M/S Mgrs	S/Provider	-.01	1.000
L4: Org. Member Development (n=129)	Board	M/S Mgrs	.49*	.030
		S/Provider	.59*	.007
	M/S Mgrs	S/Provider	.10	1.000

*Mean difference is significant at the .05 level

[1] Organizational (Org.) Levels = Service Providers (S/Providers), Middle/Senior Managers (M/S Mgrs), and Board Members (Board)

With respect to high and low HP capacity RHAs, Table 4 displays significant differences ($p<0.05$) between respondent levels within each sample as follows.

- For high capacity RHAs, board members (n=9) ranked "*L1 - Practices for Organizational Learning*" and "*L3 – Workplace milieu*" significantly higher than senior/middle managers (n=11) and service providers (n=9).
- For low capacity RHAs, service providers (n=11) ranked "*L4 - Organization Member Development*" significantly lower compared to middle/senior managers (n=12) and board members (n=5).

[Insert Table 4 about here]

Study Aim Two

The 19 regression analyses revealed significant independent variables. Table 5 reports the respective associated variable(s) for each of the 19 dependent variables for RHA prior actions on HP/HHP, along with the strength of this/these relationship(s) as represented by βeta weights, R^2 and Adjusted R^2. Significant findings for the above equations are also displayed in three path models presented in Figures 5 through 7 and summarized below.

In general for all HP and HHP actions, L1 *"Practices for organizational learning*" and/or L2 *"Wellness planning*" were consistently and significantly, positively associated with the majority of outcome variables (see Table 5).

Table 4 – Organizational Level Differences in High and Low Capacity Regional Health Authorities: *Ratings of Organizational Leadership for HP*[1]

	Capacity Group	K-W[2] Test	Level[3]
L1: Practices for Org. Learning	High	9.02*	Board
	Low	8.12*	Board
L2: Wellness Planning	High	6.63*	Board
	Low	2.80	-
L3: Workplace Milieu	High	9.38*	Board
	Low	1.24	-
L4: Org. Member Development	High	3.96	-
	Low	7.12*	S/Provider

*Chi-Square is significant at the 0.05 level

[1] Health Promotion

[2] Kruskal-Wallis

[3] Organizational (Org.) level(s) (i.e., Service Providers, Middle/Senior Managers, and/or Board Members) that differ(s) significantly in location from the other two groups based on the Kruskal-Wallis Test

"*Champion for HHP*" also had a significant positive direct association with RHA actions on HP implementation and on the majority of RHA actions on HHP risk factors and conditions as well as a weak positive indirect relationship to some outcome variables through L2 and L4. In addition, L4 *"Organization member development"* had a significant, positive association with HP implementation activities and HHP actions on physiological risk factors; and L3 *"Workplace milieu"* was positively associated with HHP actions related to tobacco reduction in various settings (see Table 5). Finally, age was positively associated with HHP actions related to physical activity.

Thus, study findings provide evidence of the significance of the independent variables of L1, L2, champion for HHP, and to a lesser extent the variables of L3, L4 and age of respondent in terms of association with specific RHA actions on HP/HHP.

[Insert Table 5 about here]

That is, these variables were significantly associated with the following RHA actions in the past 12 months:

- *Health promotion* actions in relation to a) HP assessment, implementation, and evaluation, and b) the Ottawa Charter generic action strategies (see Figure 5)

Table 5 – Results of Multiple Linear Regressions: Relationship Between Organizational Leadership and Health Authority Actions for Health Promotion (HP) & Heart Health Promotion (HHP)

Dependent Variable	Significant Independent Variables	β	R^2	Adjusted R^2
1. Relationship of *L1, L2, L3, L4, Age, Gender, + Champion for HHP with RHA Health Promotion Activities - past 12 months:				
i) HP Assessment (A)	· L1	.23	.17	.16
	· L2	.23		
ii) HP Planning (P)	· L1	.22	.05	.04
iii) HP Implementation (I)	· L1	.44	.32	.31
	· L4	.15		
	· Champion for HHP	.15		
iv) HP Evaluation (E)	· L1	.30	.29	.28
	· L2	.29		
v) Aggregated Scores (A, P, I & E)	· L1	.26	.07	.06
vi) Ottawa Charter Action Strategies	· L1	.35	.38	.37
	· L2	.33		
2. Relationship of *L1, L2, L3, L4, Age, Gender, + Champion for HHP with RHA Actions on Heart Health Risk Factors & Risk Conditions - past 12 months:				
i) Physiological Factors	· L2	.19	.17	.15
	· L4	.20		
	· Champion for HHP	.18		
ii) Behavioural Factors	· L2	.34	.12	.11
iii) Psychosocial Factors	· L2	.35	.18	.17
	· Champion for HHP	.16		
iv) Environmental Conditions	· L1	.36	.22	.21
	· Champion for HHP	.25		
v) Aggregated Risk Factor & Condition Scores	· L1	.30	.16	.15
	· Champion for HHP	.24		

*Leadership components: L1 Practices for Org. Learning; L2 Wellness Planning; L3 Workplace Milieu; L4 Organization Member Development

Table 5 – Results of Multiple Linear Regressions: Relationship Between Organizational Leadership and Health Authority Actions for Health Promotion (HP) & Heart Health Promotion (HHP) (cont'd)

Dependent Variable	Significant Independent Variables	β	R^2	Adjusted R^2
3. Relationship of *L1, L2, L3, L4, Age, Gender, + Champion for HHP with RHA Heart Health actions related to Behavioural Risk Factors in **specific settings in the past 12 months:				
i) Tobacco Reduction in S,W,H,C	· L1	.38	.25	.23
	· L2	.26		
	· L3	.23		
	· Champion for HHP	.14		
ii) Nutrition in S,W,H,C,R,G	· L1	.39	.16	.15
iii) Physical Activity in S,W,H,C	· L2	.29	.16	.14
	· Champion for HHP	.18		
	· Age	.14		
iv) Aggregated Behavioural Risk Factor Actions	· L1	.36	.21	.19
	· Champion for HHP	.19		
	· Age	.14		
4. Relationship of Age, Gender and Champion for HHP with Factors of Organizational Leadership for HP:				
i) L1	· Age	.17	.03	.02
ii) L2	· Champion for HHP	.26	.07	.06
iii) L3	· Champion for HHP	.16	.03	.02
iv) L4	· Champion for HHP	.14	.02	.01

*Leadership components: L1 Practices for Org. Learning, L2 Wellness Planning, L3 Workplace Milieu, L4 Organization Member Development

**Specific settings: Schools (S), Workplaces (W), Health care settings (H), Community at large (C), Restaurants (R), and Grocery stores (G)

- *Heart health promotion* actions related to a) physiological, behavioural, psychosocial, and environmental risks (see Figure 6), and b) tobacco reduction, nutrition, and physical activity in schools, workplaces, health settings and the general community (see Figure 7).

In summary, L1, L2, and presence of a champion for HHP are the highest associated constructs in relation to HP actions (i.e., assessment, implementation, evaluation, and Ottawa Charter action strategies) and HHP actions (i.e., physiological, behavioural, psychosocial, and environmental risks) by RHAs.

Significant variables were also associated with the three penultimate outcome variables. The first of these dependent (i.e., outcome) variables reflects the traditional action focus on *behavioural risk factors* (i.e., tobacco use, poor nutrition, physical inactivity) in specific settings and reveals that L1 *Practices for organizational learning*, *Champion for HHP*, and *Age* are significantly associated with such actions. The second penultimate variable, *Overall RHA actions for HP* (i.e., as measured by aggregated scores of RHA actions over the prior 12 months on HP assessment, planning, implementation, and evaluation activities) are positively associated with L2 *Wellness planning*. The last penultimate variable, *RHA actions on all HHP risk factors/conditions* (i.e., as measured by aggregated scores of action in the prior 12 months on all risks categories outlined in the Determinants of Heart Health Model) is significantly associated with the variables of L1 *Practices for organizational learning* and *Champion for HHP*.

Figures 5 to 7 display the final path models developed from the key relationships found in the regression analyses with respect to L1, L2, and champion for HHP, as well as L3, L4, and age of respondent variables

[Insert Figures 5 to 7 about here]

Subsidiary Study Aim

Table 6 presents significant correlations, ranging between 0.39 to 0.67 at the 0.01 level (2-tailed), found between the three dimensions of organizational capacity for health promotion as proposed in the Alberta Model. That is, the relationships between the dimensions of *leadership, will to act*, and *infrastructure* are significant at the low to moderately positive level providing evidence for the uniqueness of each global measure from the other two.

[Insert Table 6 about here]

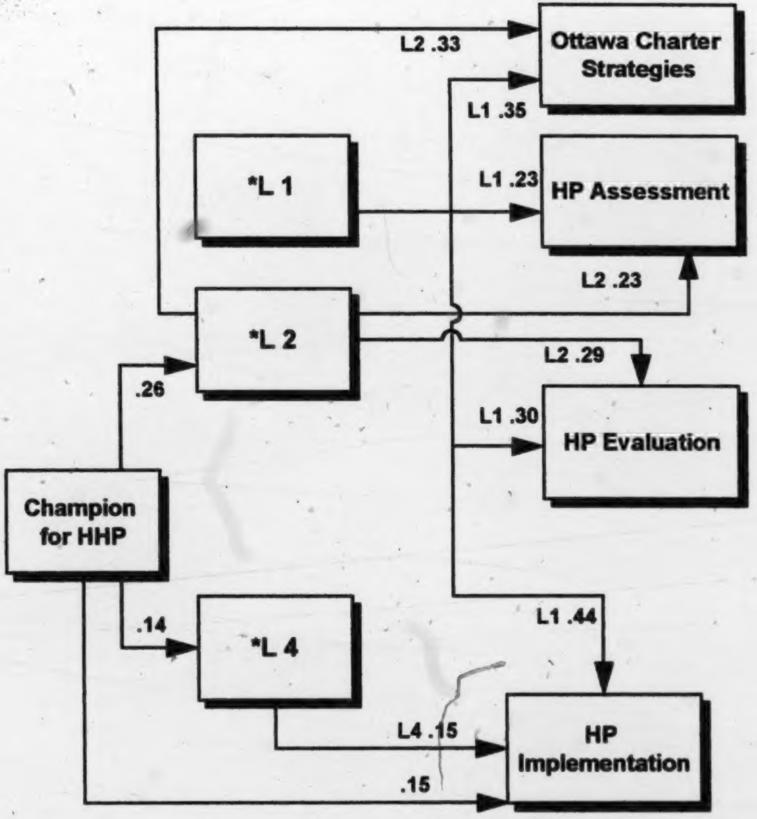


Figure 5 – Significant Relationships of Measures of Organizational Leadership with Regional Health Authority Action on HP[1]

[1]Health Promotion (HP)
*Leadership components: L1 Practices for Organizational Learning
L2 Wellness Planning
L3 Workplace Milieu
L4 Organization Member Development

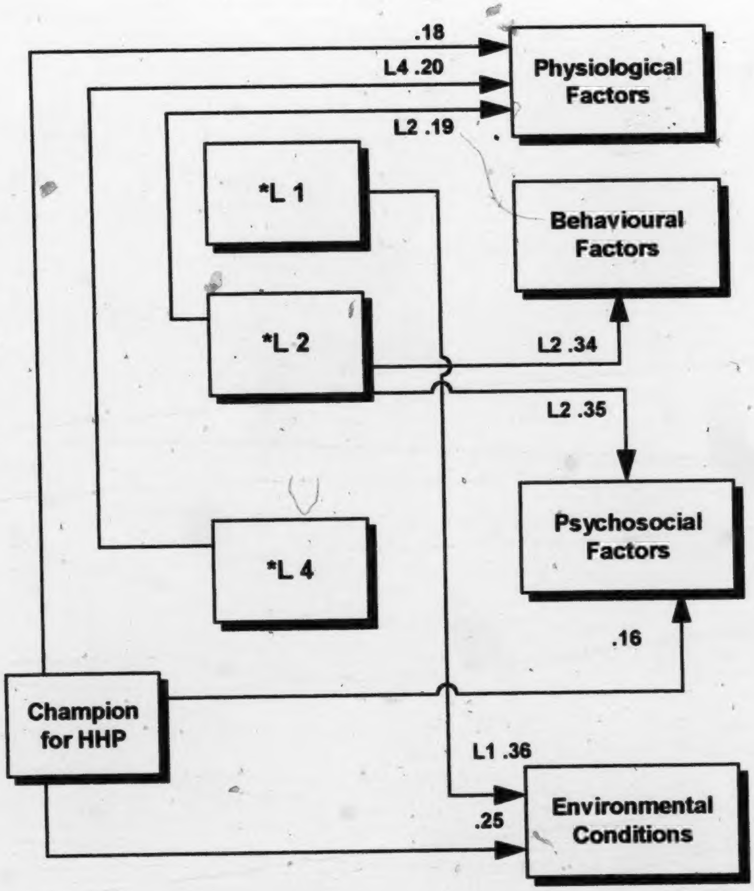


Figure 6 – Significant Relationships of Organizational Leadership for HP[1] with RHA Action on Physiological, Behavioural, Psychosocial, and Environmental Heart Health Risks

[1] Health Promotion (HP), Heart Health Promotion (HHP)

*Leadership components:
L1 Practices for Organizational Learning
L2 Wellness Planning
L3 Workplace Milieu
L4 Organization Member Development

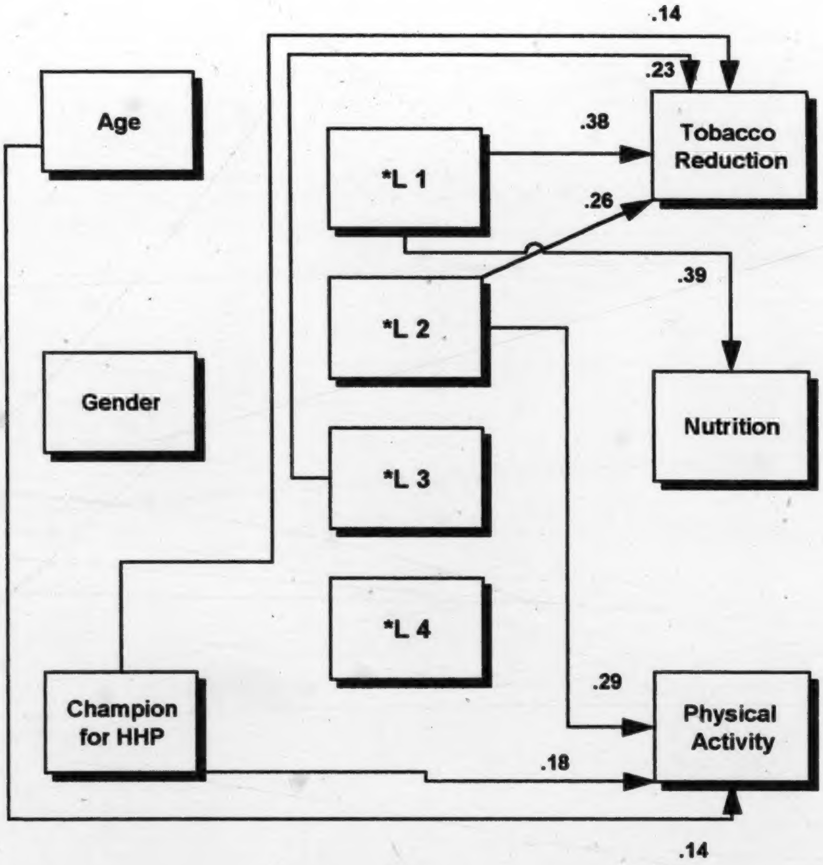


Figure 7 – Significant Relationships of Organizational Leadership for HP[1] with RHA Action on Tobacco, Nutrition, & Physical Activity

[1]Health Promotion (HP), Heart Health Promotion (HHP)
*Leadership components: L1 Practices for Organizational Learning
L2 Wellness Planning
L3 Workplace Milieu
L4 Organization Member Development

Table 6 – Global Measures of Organizational Capacity for Health Promotion:
Correlations of Leadership, Will to Act & Infrastructure

	Leadership *(n=108)*	**Will to Act** *(n=58)*	**Infrastructure** *(n=74)*
Leadership	•		
Will to Act	.39*	•	
Infrastructure	.67*	.66*	•
Mean	3.03	3.61	3.47
SD	0.66	0.41	0.58

*Correlation is significant at the 0.01 level (2-tailed)

DISCUSSION

The overall findings of this study demonstrate that (1) differences exist between respondent levels across Alberta RHAs on ratings of organizational leadership for HP and (2) organizational leadership for health promotion is related to RHA actions on health promotion and heart health promotion within the 17 regional health authorities in Alberta, Canada. That is, the baseline AHHP Organizational Capacity Survey provides evidence that L1 *Organizational learning*, L2 *Wellness planning* and, to a lesser extent, L3 *Workplace milieu* and L4 *Organizational member development* are associated with actions on HP/HHP by these RHAs (see Table 5). The presence of a *Champion for HHP* within the organization was also found to have an important association with respect to RHA actions on health promotion and heart health promotion.

The first study aim revealed significant differences between respondent level ratings on three of the four measures of organizational leadership for HP across all 17 RHAs. Significantly higher board level ratings on L1, L2, and L4 compared to those of senior/middle managers and service providers are not surprising given dissimilar vantage points in the experience of organization life. In complex organizations such as RHAs, board members are selected to represent the public and can often have limited previous exposure to concepts and strategies related to health generally as well as leadership for health promotion and heart health promotion specifically. Board members also typically have reduced contact with operational processes and conditions given their primary focus on governance functions (e.g., setting policy framework and directions, establishing and monitoring the annual business plan, etc.).

Board perspectives can, therefore, be expected to be quite different compared to middle/senior managers and frontline practitioners who are more directly involved in processes related to health service implementation. Higher board ratings of L1 *Organizational learning,* L2 *Wellness planning*, and L4 *Organizational member development* may thus reflect a more removed, and perhaps less informed, perspective with respect to processes and conditions that relate to such organizational leadership.

One could also argue that higher board ratings are due to greater access to organization-wide information in terms of progress on RHA imperatives for L1, L2, and L4. Those at executive leadership levels (i.e., CEO and Board) often have information on current plans, interventions in progress, and future interventions on identified organizational issues. In contrast, those closer to the frontline may have a more immediate focus on what currently exists and impacts their work, rather than on what they are told is planned in the near future or is currently unfolding elsewhere in the organization. Complex organizational life hence yields various perspectives and therefore simultaneously dissimilar experiences of the organization. These findings relate to domain theory (Kouzes & Mico, 1979), which proposes the existence of values and power differences in each of three domains within public service organizations: the policy domain, the management domain, and the service domain. Although only one of the three domains are illustrated in these findings, this model provides a theoretical basis for the significant differentials found between board members (i.e., the policy domain) and the other two organizational levels. Further examination of the experiences between organizational levels using this framework can assist with purposeful analyses of power and values issues related to such differentials in the development of collective leadership for health promotion.

Notably our finding that, within low HP capacity RHAs, service provider ratings of L4 *Organization member development* were significantly lower compared to board and senior/middle manager levels suggests such ratings may be an indicator of lowered overall organizational capacity for HP. Recent literature discusses the importance of human and social capital to modern organizations, such as RHAs (Schuller, 2001; Veenstra, 2001). Social capital focuses on relationships within and between networks as well as on the established network norms developed through common values, attitudes, trust levels, and participation (Schuller, 2001). The development of human capital focuses on individual knowledge and skills. Ultimately, organizations focused on the development of internal processes and conditions that stimulate innovations from the bottom up would do well to pay attention to the perceptions of those members most involved in such activities, in this case health service providers. Their development from both an individual and a social capital point of view are important to organizational capacity for innovations that address public health issues. Moreover, their development, together with the development of formal leaders in the organization, is fundamental for collective organizational leadership per the current study.

Regarding our second aim, this study presents important findings with respect to influencing the development of health promotion actions in these RHAs. A concentration on the development of the leadership components of "L1 Practices for Organizational Learning" and "L2 Wellness Planning" may, as suggested by these results, contribute to organizational conditions that influence RHA activity on *Ottawa Charter action strategies for HP* as well as on *HP evaluation*. Planning processes that focus on the World Health Organization-recommended (1987) *generic action strategies* and are inclusive of *evaluation* activities are considered essential to guide the development of actions that are health promoting at the population level (Hamilton & Bhatti, 1996). The findings also suggest that organizational attention to "L1 Practices for Organizational Learning" in combination with "L4 Organizational Member Development" and the presence of a "Champion for HHP" may influence the *implementation* of health promotion actions. Given that *HP implementation* processes most likely involve health service providers and their line leaders it makes sense that "L1 Practices for Organizational Learning" and "L4 Organizational Member Development" could have a significant association with these activities. A "Champion for HHP" could also be involved both directly through encouraging a focus on HP implementation and indirectly via advocating for these types of learning conditions within the organization.

It is instructive to those concerned with community-wide improvements related to heart health, that "L1 Practices for Organizational Learning" and the presence of a "Champion for HHP" significantly influenced actions on environmental risk conditions in these RHAs. Experts, such as Pearson et al. (1998) and Pipe (1995), have advocated for changes at the socio-environmental level of society (beyond individual lifestyle) to create sustainable actions that reduce widespread problems related to cardiovascular morbidity and mortality. Such changes could not only benefit the individual, but also contribute to the sustainability of the health care system through reduced demands by a healthier society. These findings suggest that a focus on organizational learning about environmental risk conditions and the presence of a champion for HHP may, in collaboration with other stakeholders, assist these RHAs to address such societal risk conditions.

Also with respect to heart health, study findings suggest that RHA actions on key physiological and psychosocial risk factors may be influenced by the development of "L2 Wellness Planning" and by ensuring the presence of a "Champion for HHP" in the organization. Additionally, concentration on "L1 Practices for Organizational Learning", "L2 Wellness Planning", "L3 Workplace Milieu", and a "Champion for HHP" may also play a role in increasing RHA actions on the reduction of risky behaviours (i.e., tobacco use, poor nutrition, and physical inactivity). To summarize, heart health promotion via undertaking action on physiological risk, psychosocial risk, and behavioural risk factors may be stimulated in these RHAs by the development of the *Practices for Organizational Learning* (L1), *Wellness Planning* (L2), and *Workplace Milieu* (L3) as well as *Champions for HHP*.

Overall, the main study results suggest that a focus on development of organizational leadership components *Practices for Organizational Learning* (L1) and *Wellness Planning* (L2) as well as a Champion for HHP are the most promising strategies to influence an increase in actions within Alberta RHAs on health promotion in general and heart health promotion specifically. Additional concentration on *Organizational Member Development* (L4) and *Workplace Milieu* (L3) may also influence such RHA actions.

The presence of a "Champion for HHP" relates to Kumar and Thibodeaux's (1990) framework on matching a change agent's degree of political involvement with the level of desired organizational change to influence its management. Analysis of the *type* of organizational change needed in a specific RHA to increase its actions on HP/HHP could thus be matched by the appropriate political strategy fulfilled by a champion for HHP. That is, political awareness, facilitation, and/or intervention strategies respectively could be matched with first, second, and third level changes. This framework may be instructive for those interested in developing the role of the champion for HHP to assist in the influencing of RHA actions for health promotion.

From a theoretical perspective, the above study findings relate to Marion and Uhl-Bien's (2001) contention that "emergent structures" (i.e., innovations) in and between organizations are produced by a combination of micro-dynamic and macro-dynamic forces. Specifically, micro-dynamic forces in organizational life are depicted as bottom-up behaviours, both coordinated and random, that result from the interactions of individuals across the organization. Macro-dynamic forces are depicted as larger systems that emerge from individual and group interactions at the micro-level. Attention to L1-*Practices for Organizational Learning,* L2-*Wellness Planning,* and a *Champion for HHP*, as these study findings suggest, may influence micro-dynamic forces in the development of actions for HP/HHP in health settings.

Marion & Uhl-Bien (2001), on the basis of complexity theory, further posit that organizational *behavioural randomness* and the *interaction effect* produced by the interactivity of micro-dynamic and macro-dynamic forces within and between systems, have implications for leadership at a strategic level. That is, the unpredictability suggested by this complex interactivity indicates that executive leadership is not about close control of behaviours and exact prediction of futures, but rather about creating conditions to foster emergent innovations from the bottom-up (Day, 2001; Marion & Uhl-Bien, 2001).

To extrapolate, strategic leadership is therefore needed at the macro-dynamic level (i.e., executive leadership at the CEO and Board levels) to facilitate the institutionalization of organizational practices, which support bottom-up micro-dynamics related to organizational leadership for health promotion. This, in turn, enables collective leadership (i.e., organizational leadership roles both formal and informal throughout the organization) to create and implement innovations on; for example, heart health, in collaboration with others across macro-systems. Based on our key findings as described above, RHA actions on HP/HHP are thus more likely to occur when executive leaders facilitate the following collective organizational leadership components: L1 practices which support organizational learning, and L2 planning processes which support wellness and evaluate effects related to the public. As well, such executives should also ensure the presence of organizational champions for HP/HHP.

Finally, with respect to the subsidiary aim, correlations between the three dimensions of capacity for health promotion as assessed by these RHAs were positively associated yet distinct. This finding provides evidence of the interdependent relationship between the dimensions of leadership, will to act, and infrastructure as depicted by the Alberta Model. As well, the distinctness of the leadership composite variable provides more confidence in its use for future testing of interventions related to building organizational leadership for HP in these RHAs.

Several study limitations and recommendations for overcoming these limitations must be considered. First, with respect to assessment ratings in the two study aims, the survey approach limits score results to measurement of respondent perceptions. Such perceptions may be limited by respondent ability to assess leadership at an organization-wide rather then dyadic level as well as by the possibility that respondents may answer in a socially desirable manner in order to protect their organization. Concurrent validity testing of the measures of collective organizational leadership is therefore recommended. Second, the association effects of the constructs (i.e., the four leadership components and champion for HHP) with RHA actions for HP/HHP are derived from a modest sample (n=144) and therefore may not be generalizable across all contexts. Finally, the cross-sectional study design limits the evaluation of the multi-faceted topic of organizational leadership and health promotion to simple linear terms and no inference of casuality can be made. Additional quantitative studies are therefore required to examine the stability over time of these effects with other larger, more representative, and dissimilar samples. As well, longitudinal approaches using combined qualitative and quantitative methods are needed to be able to determine predictive factors with confidence.

Given the need for effective actions on public health issues (e.g., heart health), this study represents an important contribution as few studies have published data related to organizational leadership and its relationship to organizational actions for HP (Witte, 1993). With prudent consideration of the aforementioned issues, those elements identified in this study as influencing organizational actions on HP/HHP can assist the design and testing of promising interventions to build RHA capacity for health promotion. Recommended research directions include a focus on: practices and processes that promote collective learning throughout the organization; planning approaches which are based on meaningful information and focused on wellness over the long term; the use of champions; the personal and professional development of organizational members; and the purposeful creation of a positive workplace environment which engenders effective working relationships. Such investigations should include assessment of effects on organizational actions for health promotion.

Longitudinal, combined research approaches as recommended above are needed to more fully examine the key study findings. For example, further quantitative and qualitative examination of differences at various organizational levels may advance knowledge on strategies to enhance collective organizational leadership for HP. Tracking such differences over time, and with qualitative depth, could identify particularized approaches for specific organizational levels in the building of health setting collective leadership for health promotion actions.

Correlational findings between leadership measures and those of will to act and infrastructure per the Alberta Model suggest that the composite variable of leadership can be used to test theoretical suppositions related to building overall capacity for health promotion in health care settings. Such applications could also focus on other public health issues to test knowledge and skill transfer (i.e., organizational learning) from applications dealing with heart health issues through prospective study approaches.

The summary results of this study imply that organization-wide practices, which cultivate leadership components (particularly L1-*Practices for Organizational Learning* and L2-*Wellness Planning*), and a champion for HP/HHP, contribute to RHA organizational conditions that enable action on HP/HHP. Implications for executive leaders of complex health settings who aim to develop such organizational practices include the need to incorporate broad systems thinking and to also be cognizant of nonlinear effects (e.g., as depicted in the Alberta Model) as well as interactive forces across the organization. Such awareness will enable executive leadership ability to make the most of opportunities to create broad organizational conditions, which support collective leadership development on health promotion, through a focus on processes and practices that stimulate innovations on the key issues. Specifically, as suggested by this study, the creation of innovations on the key issue of heart health will be best served through practices and processes aimed primarily at *organizational learning, wellness planning, champions for HP/HHP*, and to a lesser extent *organizational member development and a positive workplace milieu.* Transference of the collective leadership knowledge and skills gained through these applications can, in due course, position health jurisdictions to effectively address other key public health issues.

This study illuminates the need for greater understanding of the impact of collective organizational leadership upon health promotion actions within jurisdictions accountable for population health. Building such evidence can ultimately assist health care practitioners, administrators, and board members in numerous jurisdictions to address a variety of issues essential for the promotion of health and well-being at a community-wide level.

FOOTNOTES

[1] The Levene statistic verified the homogeneity of variances assumption for the leadership components of L1 *Practices for Organizational Learning*, L2 *Wellness Planning, and* L4 *Organization Member Development* (Norusis, 1993).

[2] This technique, appropriate for one-way ANOVA, compares all possible pairs of means in such a way that reduces the probability of making one or more Type I errors (Neter, Kutner, Nachtsheim & Wasserman, 1996).

[3] Histograms of the residuals established normality of the data while scatterplots of the residuals, versus the predicted values, confirmed linearity and homoscedasticity of the data. Multivariate outliers of the residuals were examined by the Cook's distance procedure: several outliers were identified, but most were within acceptable ranges and thus none were deleted or transformed. Examination of each regression equation revealed a minimum of n=118 pairwise cases in these analyses; since all approximated a normal curve, missing data were replaced with the individual variable mean to preserve sample size.

[4] Kolmogorov-Smirnov significance values at 0.20 for each of the global measures of leadership, will to act and infrastructure established that all three approximated a normal curve based on a significance value *above* 0.05. The Shapiro-Wilk test verified normal distribution of the data with significance values achieving 0.11 and above. As well, histograms and stem-and-leaf plots confirmed the normality of all three global measures.

REFERENCES

Alberta Health. (1997). *The Alberta Heart Health Evaluation Report*. Edmonton, AB: Author.

Anderson, D., Plotnikoff, R., Raine, K., Cook, K., Smith, C. & Barrett, L. (under review). The development of scales to measure "will" to promote heart health within health organizations. Alberta Heart Health Project, Centre for Health Promotion Studies, University of Alberta, Edmonton, Canada.

Argyris, C. & Schon, D.A. (1978*). Organizational Learning: A theory of action perspective*. Reading, MA: Addison-Wesley.

Argyris, C. & Schon, D.A. (1996). *Organizational Learning II*. Reading, MA: Addison-Wesley.

Barrett, L.L., Plotnikoff, R.C., Raine, K. & Anderson, D. (under review). Development of measures of organizational leadership for health promotion by regional health authorities. Alberta Heart Health Project, Centre for Health Promotion Studies, University of Alberta, Edmonton, Canada.

Bass, B.M. (1985). *Leadership and Performance Beyond Expectations*. New York: Free Press.

Bass, B.M. (1990). From transactional to transformational leadership: learning to share the vision. *Organizational Dynamics*, 18 (3), 19-31.

Bass, B.M. (2000). The future of leadership in learning organizations. *Journal of Leadership Studies*, 7 (3), 18-35.

Boal, K.B. & Hooijberg, R. (2000). Strategic leadership research: Moving on. *Leadership Quarterly*, 11 (4), 515-549.

Bryman, A. (1992). *Charisma and Leadership in Organizations*. London: Sage.

Carless, S. (1998). Assessing the discriminant validity of transformational leader behaviour as measured by the MLQ. *Journal of Occupational and Organizational Psychology*, 71 (4), 353-358.

Case, R. (1998). Leader member exchange theory and sport: Possible applications. *Journal of Sports Behavior*, 21 (4), 387-394.

Catford, J. (1997). Developing leadership for health: Our biggest blindspot. *Health Promotion International*, 12 (1), 1-4.

Chang, R. (2001). Turning into organizational performance. *Training & Development, May*. Retrieved November 22, 2001 from: http://www.findarticles.com/cf_0/m4467/5_55/74830042/print.jhtml

Conger, J.A. & Kanugo, R.N. (1987). Toward a behavioral theory of charismatic leadership in organizational settings. *Academy of Management Review*, 12 (4). 637-647.

Day, D.V. (2001). Leadership development: A review in context. *Leadership Quarterly*, 11 (4), 581-613.

Den Hartog, D., Van Muijen, J. & Koopman, P. (1997). Transactional versus transformational leadership: An analysis of the MLQ. *Journal of Occupational and Organizational Psychology*, 70,19-34.

Fields, D. & Herold, D. (1997). Using the Leadership Practices Inventory to measure transformational and transactional leadership. *Educational and Psychological Measurement*, 57 (4), 569-579.

Gardner, W. & Avolio, B. (1998). The charismatic relationship: a dramaturgical perspective. *Academy of Management Review*, 23 (1), 32-58.

Graber, D.R. & Johnson, J.A. (2001). Spirituality and health care organizations. *Journal of Healthcare Organizations*, 46 (1), 39-52.

Greenleaf, R. (1977). *Servant Leadership: A journey into the nature of legitimate power and greatness*. New York: Paulist Press.

Gronn, P. (1999). Substituting for leadership: The neglected role of the leadership couple. *Leadership Quarterly*, 10 (1), 41-62.

Gronn, P. (2000). Distributed properties: a new architecture for leadership. *Educational Management and Administration*, 28 (3), 371-338.

Gronn, P. (2002). Distributed leadership as a unit of analysis. *Leadership Quarterly*, 13, 423-451.

Hallam, S. (2001). *Leadership Matters: Research about leadership is important*. Retrieved November 22, 2002 from: http://www.uakron.edu/cba/lead/tools.html

Hall, D.T. & Seibert, K.W. (1992). Strategic management development: Linking organization strategy, succession [planning, and managerial learning. In D. H. Montross & C. J. Shinkman (Eds.), *Career development: Theory and practice* (pp. 255-275). Springfield, IL: Charles C. Thomas.

Hamilton, N. & Bhatti, T. (1996). *Population Health Promotion: An integrated model of population health and health promotion*. Ottawa: Health Canada.

Harris, J.H. (1975). *A Primer of Multivariate Statistics*. New York: Academic Press, Inc.

Hawe, P., King, L., Noort, M., Jordens, C. & Lloyd, B. (2000). *Indicators to help with capacity building in health promotion*. Retrieved December 2, 2001 from: http://www.health.nsw.gov.au/public-health/health-promotion/pdf/indicators/capbuild.pdf

Hawe, P., Noort, M., King, L. & Jordens, C. (1997). Multiplying health gains: The critical role of capacity building within health promotion programs. *Health Policy*, 39, 29-42.

House, R.J. & Aditya, R. (1997). The social scientific study of leadership: Quo vadis? *Journal of Management*, 23, 409-474.

Hunt, J.G. (1999). Transformational/charismatic leadership's transformation of the field: An historical essay. *Leadership Quarterly*, 10, 129-144.

Kaplan, A. (1994). *Leadership and Management*. Retrieved August 19, 2000 from: http://www.cdra.org.za/publications/various_articles.

Kaplan, R. (1990). Character change in executives as "re-form" in the pursuit of self-worth. *Journal of Applied Behavioral Science*, 26 (4), 461-481.

Kerr, S. & Jermier, J. (1978). Substitutes for leadership: Their meaning and measurement. *Organizational Behavior and Human Performance*, 22, 375-403.

Kets de Vries, M. (1994). The leadership mystique. *Academy of Management Executive*, 8 (3), 73-92.

Kirkpatrick, S.A. & Locke, E.A. (1991). Leadership: do traits matter? *Academy of Management Executive*, 5 (2), 48-60.

Krishnan, H.A. & Park, D. (1998). The influence of top management team leadership on corporate refocusing: a theoretical framework. *The Journal of Leadership Studies*, 5 (2), 50-61.

Kouzes, J.M. & Mico, P.R. (1979). Domain theory: an introduction to organisational behaviour in human service organisations. *Journal of Applied Behavioural Analysis*, 15, 449-469.

Kumar, K. & Thibodeaux, M.S. (1990). Organizational politics and planned organization change. *Group & Organization Management*, 15 (4), 357-366.

Latham, G.P. & Seijts, G.H. (1998). Management development. In P. J. D. Drenth, H. Thierry & Associates (Eds.), *Handbook of work and organizational psychology* vol. 3, 2nd ed. (pp. 257-272). Hove, UK: Psychology Press/Erlbaum.

Marion, R. & Uhl-Bien, M. (2001). Leadership in complex organizations. *The Leadership Quarterly*, 12, 389-418.

Neter, J., Kutner, M.H., Nachtsheim, C.J. & Wasserman, W. (1996). *Applied Linear Statistical Models, Fourth Edition*. Chicago: Times Mirror Higher Education Group.

Nirenberg, J. (1993). *The Living Organization: Transforming teams into workplace communities*. San Diego: Pfeiffer & Co.

Nirenberg, J. (2001). What leadership crisis? *Across the Board: The Business Knowledge Network*, September/October. Retrieved November 21, 2001 from: http://www.conference-board.org/atb/article/nirenbergSeptoct01.cfm

Norusis, M. & SPSS Inc. (1993). *SPSS for Windows: Professional Statistics, Release 6.0*. Chicago, IL: SPSS Inc.

Nunnally, J.C. (1978). *Psychometric Theory*. New York, NY: McGraw-Hill.

Oppenheim, A.N. (1992). *Questionnaire Design, Interviewing and Attitude Measurement*. New York: St. Martin's Press.

Pearson, T.A., Shankle-Bales, V., Blair, L., Emmanuel, S.C., Farquhar, J.W., Low, L.P., MacGregor, L.J., MacLean, D.R., O'Connor, B., Pardell, H. and Petrasovits, A. (1998). The Singapore declaration: Forging the will for heart health in the next millennium. *CVD Prevention* 1, 182-199.

Pillai, R. & Meindl, J.R. (1998). Context and charisma: a "meso" level examination of the relationship with organic structure, collectivism, and crisis to charismatic leadership. *Journal of Management*, 24 (5), 643-662.

Plotnikoff, R.C. (1994). An application of protection motivation theory to coronary heart disease risk factor behaviour in three Australian samples: Community adults, cardiac patients, and school children. Unpublished doctoral dissertation, University of Newcastle, Newcastle, Australia.

Plotnikoff, R.C., Anderson, D., Raine, K., Cook, K. & Barrett, L. (under review). Scale development of individual and organization infrastructure for heart health promotion in regional health authorities. Alberta Heart Health Project, Centre for Health Promotion Studies, University of Alberta, Edmonton, Canada.

Plotnikoff, R., Williams, P. & Fein, A. (1999). The effects of a school capacity-building intervention on children's heart health: Evaluation of the Coalfields Health Heartbeat School Project in New South Wales, Australia. *Health Education Journal*, 58, 389-400.

Podsakoff, P. & MacKenzie, S. (1995). An examination of substitutes for leadership within a levels-of-analysis framework. *Leadership Quarterly*, 6 (3), 289-328.

Podsakoff, P. & MacKenzie, S. (1997). Kerr and Jermier's substitutes for leadership model: Background, empirical assessment, and suggestions for future research. *Leadership Quarterly*, 8 (2), 117-132.

Podsakoff, P., MacKenzie, S. & Bommer, W. (1996). Transformational leader behaviors and substitutes for leadership as determinants of employee satisfaction, commitment, trust, and organizational citizenship behaviors. *Journal of Management*, 22 (2), 259-298.

Rogers, E.M. (1995). *Diffusion of Innovations (4th ed.)*. New York: Free Press.

Schein, E.H. (1992). *Organizational Culture and Leadership*, 2nd Edition. San Francisco: Jossey-Bass.

Schriesheim, C.A. (1997). Substitutes-for-leadership theory: development and basic concepts. *Leadership Quarterly*, 8 (2), 103-108.

Schriesheim, C., Neider, L., Scandura, T. & Tepper, B. (1992). Development and preliminary validation of a new scale (LMX-6) to measure leader-member exchange in organizations. *Educational and Psychological Measurement*, 52, 135-147.

Schuller, T. (2001). The complementary roles of human and social capital. *ISUMA, [Canadian Journal of Policy Research*], 2 (1), 18-24.

Senge, P.M. (1990). *The Fifth Discipline - The Art and Practice of the Learning Organization*. New York, NY: Doubleday.

Shamir, B., Zakay, E., Breinin, E. & Popper, M. (1998). Correlates of charismatic leader behavior in military units: Subordinates' attitudes, unit of characteristics, and superiors' appraisals of leader performance. *Academy of Management Journal*, 41 (4), 387-409.

Sieber, S.D. (1973). The integration of fieldwork and survey methods. *American Journal of Sociology*, 78 (6), 1335-1359.

Simon, H.A. (1969). *Sciences of the Artificial*. Cambridge, MA: MIT Press.

Smith, C., Raine, K., Anderson, D., Dyck, R., Plotnikoff, R., Ness, K. & McLaughlin, K. (2001). A preliminary examination of organizational capacity for heart health promotion in Alberta's regional health authorities. *Promotion & Education*, September Supplement, 40-43.

Tabachnick, B. & Fidell, L. (1996). *Using Multivariate Statistics*, 3rd Edition. New York, NY: HarperCollins.

Tosi, H. & Kiker, S. (1997). Commentary on "Substitutes for Leadership." *Leadership Quarterly*, 8 (2), 109-112.

Vaill, P. (2000). Introduction to spirituality for business leadership. *Journal of Management Inquiry*, 9 (2), 115-116.

Veenstra, G. (2001). Social capital & health. *ISUMA [Canadian Journal of Policy Research]*, 2 (1), 72-81.

Walman, D. & Yammarino, F. (1999). CEO charismatic leadership: levels-of-management and levels-of-analysis effects. *Academy of Management Review*, 24 (2), 266-299.

Wayne, S., Shore, L. & Liden, R. (1997). Perceived organizational support and leader-member exchange: a social exchange perspective. *Academy of Management Journal*, 40 (1), 82-111.

Witte, K. (1993). Managerial style and health promotion programs. *Social Science & Medicine*, 36 (3), 227-238.

World Health Organization. (1987). Ottawa Charter for Health Promotion. The First International Conference on Health Promotion. *Health Promotion*, 1 (4), iii-v.

World Health Organization. (1998). *The Jakarta Declaration on Leading Health Promotion into the 21st Century: Fourth Annual Conference on Health Promotion.* WHO: Author

World Health Organization. (2002). *The World Health Report 2002*. WHO: Author. Retrieved November 2, 2002 from: http://www.who.int/whr/2002/en/

World Health Organization, Coronary Prevention Group. (1992). *Prevention of Cardiovascular Disease – Recommendations for National Governments.* Technical report.

Yukl, G. (1998). *Leadership in Organizations.* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Yukl, G. (1999). An evaluative essay on current conceptions of effective leadership. *European Journal of Work and Organizational Psychology,* 8 (1), 33-48.

Yukl, G. & Van Fleet, D. (1992). Theory and research on leadership in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (pp. 147 –197). Palo Alto, CA: Consulting Psychologists Press.

CHAPTER FOUR

DISCUSSION

CHAPTER FOUR — DISCUSSION

This chapter presents the main conclusions from the three study aims and the subsidiary question. The main study limitations are also outlined together with directions for future research and implications for health promotion policy, practice, and education. The chapter concludes with nine recommendations for leaders in health promotion policy, practice, and education settings.

4.1 Main Conclusions

Public health imperatives make it is essential to advance knowledge on factors that influence capacity for health promotion by those organizations with jurisdictional accountability for health issues such as cardiovascular disease-related morbidity and mortality. For example, development and utilization of the talents of the collective leadership across the 17 RHAs is essential in the creation of innovations targeted to this leading cause of morbidity and mortality in the province of Alberta. This thesis represents an important contribution, as few studies have approached leadership from this perspective in relation to actions on health promotion.

Paper One aimed to contribute knowledge through the development of psychometrically robust measures on organizational leadership for HP within the baseline Organizational Capacity Survey of the Alberta Heart Health Project-Dissemination Phase (AHHP). Defining leadership as collective and distributed across members and levels within an organization led to the development of four valid and reliable measures of leadership for health promotion.

Subsequently, building on this foundation, Paper Two addressed thesis aims two and three as well as the subsidiary question. Aim two examined differences on scores of the four leadership components between members at different organizational levels (i.e., service provider, middle/senior manager, board). These analyses included examination of differences between each of these groups across all regions and in both high and low HP capacity RHAs. The key finding was that board members perceive organizational leadership for HP within the RHAs to be significantly stronger than those at senior/middle manager and service provider organizational levels. This may reflect greater board access to organization-wide information or perhaps a less informed perspective given their distance from actual implementation actions for HP/HHP. Further investigation of this finding is essential to optimizing board function, given their executive leadership role with respect to enabling conditions that facilitate collective organizational leadership for health promotion. As well, within low HP capacity RHAs, significant staff perceptions of lowered organizational support for their personal and professional development compared to ratings by the other two groups on this leadership component were also found. This result has implications for future research on the identification of lowered capacity for HP in health organizations. That is, such staff ratings may be a potential indicator of lowered overall organizational capacity for health promotion. Further investigation of this notion is obviously required given the low sample size in this specific analysis.

Aim three investigated the relationships between the four leadership measures and specific RHA actions for HP and HHP. This revealed significant relationships in association with RHA actions for HP/HHP with respect to two of the four components of leadership, *"Practices for Organizational Learning"* and *"Wellness Planning"*, and with respect to the presence of a *Champion for HHP*. This finding suggests that interventions at the organizational level to enhance RHA actions for health promotion should focus on these most promising factors of influence.

Finally, a subsidiary analysis of the relationships per the Alberta Model provided preliminary evidence for the distinct yet interdependent relationships of the three dimensions of capacity. That is, the dimensions of *Leadership*, *Will to act*, and *Infrastructure* can be used in further investigations related to building organizational capacity for HP in health care settings.

4.2 Key Study Limitations

The main limitations of these investigations include the cross-sectional study design, the perception-based survey approach and the convenience sample, all of which limit generalizability. While concurrent construct validity testing of these observations across larger, more representative, and diverse samples are therefore required, this study suggests a number of research directions as well as implications for health promotion policy, practice, and education. These are discussed in the sections below.

4.3 Future Research Directions

The present study breaks new ground by taking a collective leadership approach via its focus on cross-organizational practices and processes for health promotion and therefore a number of directions are recommended for future research activity. First, measurement of leadership as processual and distributed throughout the organization is neither well understood nor developed at the present time (Gronn, 2002), although leading academics note that the Australian scientist Gibb first suggested the possibility of such leadership in the 1950's. Further research through the simultaneous examination of multiple factors using combined quantitative and qualitative methods is needed to explore leadership as a "continuum of possibilities" (Gronn, 2002). These approaches could benefit from organizational ethnographic (Rosen, 2000) and other qualitative approaches. That is, a holistic research approach to this non-linear construct would enhance investigation of the full range of its distribution throughout the layers of the organization. Complexity theory (Day, 2001; Marion & Uhl-Bien, 2001), as noted above in the discussion section of paper two, appears to provide useful insights to guide such research.

Second, research is needed on the beliefs, knowledge, and skills required by executive leadership for the facilitation of organizational conditions which develop collective leadership for health promotion. For example, Nord and Jermier's (1994) analysis of the concept of resistance in organizational life revealed "aspects of the shadow " of differing perspectives in which hierarchical leaders' grand visions differed, however, all devalued lower level participants' perspectives. Based on Carl Jung's (1969) concept of the *Shadow*, these authors propose the *Collective Shadow* metaphor to describe the existence of shortcomings in the fundamental assumptions held by a broad range of individuals in the management field. This assumption of the *collective shadow* is posited as being shared by a variety of investigators as well and suggests a new criterion for evaluating research efforts: "The ratio of what it illuminates to what it obscures" (Nord & Jermier, 1994, p. 8). The key appears to be uncovering the "grand vision" of the shadow-self in hierarchical leadership (i.e., the invisible internal drivers for leaders) as well as attending to micro-level organizational dynamics to enable empowerment and innovations across the organization. Further to this notion of the *collective shadow*, other authors have expressed a similar concern regarding recent transformational leadership models, which tend to over-emphasize organizational cohesion to the detriment of internal dissent and debate (Tourish & Pinnington, 2002).

Third, development is needed in the quality and scope of measurements available for both tangible and intangible assets (i.e., resources) of an organization (Miller & Israel, 2002). Moreover, in all organizations and especially in human service organizations such as health settings, intangible resources – that is, the "minds" of people as well as organizational processes – are key to the development of effective organizational life that enables attainment of strategic goals. Performance metrics within the subtle domains of interpersonal and emotional intelligence within organizations have been recommended, however, these aspects are currently very difficult to measure. This study advances knowledge by quantifying important processes and practices for leadership as a collective entity distributed across levels and members in the organization.

Four, further to the above recommendation, it is also important to do research from a processual point of view with respect to leadership and organizational change that supports the creation of work environments to stimulate innovation. It is particularly important to examine organizational conditions that enable collective leadership to enhance the health of the community. Integral to these efforts would be considerations of the political and cultural aspects of organizational life. The four leadership components identified in this study provide a starting point for such investigations.

Five, use of specific strategic imperatives within public *and* private sectors, such as the concentration on health promotion in this study, are recommended to focus the research on collective leadership processes as well as executive leadership of the organization towards attainment of strategic goals. With these specifics, comparative study of important questions might include: how does executive leadership develop organizational opportunities for collective leadership; what processes are essential for this development; are there identifiable generic stages of organizational growth towards specified goals and if so what type of leadership is needed at each stage; and what are the impacts of such organizational changes in the focus and locus of leadership?

4.4 Recommendations for Health Promotion Policy, Practice and Education

The questions posed above require a focus on leadership, the use of power and influence, organizational culture, and organizational change processes. Some authors note that the concept of hierarchical leadership is so engrained in organizational culture that efforts to implement collective leadership and then study it are doomed to failure (Gronn, 2002). Alternatively, the following question is suggested by the present study: "In which organizational contexts is collective leadership beneficial?" An organization, which relies on the professional knowledge and skill of its people, is already in a position whereby collective leadership is required. That is, numerous judgments are made and decisions taken in modern day-to-day organizational life by members distributed throughout the organization. The phenomena of organizational reliance on the specific bodies of knowledge, as well as the skill sets, of a number of professional discipline practices in the attainment of organizational goals is common in a number of settings, both in the public and private sectors. The concept of collective leadership therefore allows organizational leadership theory to contribute a research and development focus to what is already a known organizational phenomenon. Moreover, in health organizations specifically, the key to the longer-term health of the population is the purposeful creation of organizational conditions, which enhance these talents and support a collective focus on health promotion innovations to reduce major public health issues.

To that end, a number of strategic implications flow from the results of this study with respect to health promotion policy, practice, and education. First, what is needed at a policy level in Alberta is executive and collective leadership development for health promotion across provincial departments and health authorities, and in fact, across all levels that impact health. Strategic policies related to the development of such leadership for health promotion will stimulate a coordinated focus on longer-term population health gains via socio-environmental approaches to reduce risk factors and conditions as discussed throughout this thesis. Such policy should focus on strengthening channels for ongoing health promotion planning, communication, coordination, and collaboration, building on the current cross-departmental initiative of the Alberta government, established to implement recommendations from the report, *A Framework for Reform: Report of the Premier's Advisory Council on Health* (Mazankowski et al., 2001). Such policy should also address the establishment of adequate and dedicated financial resources for health promotion by those with this jurisdictional accountability. As well, Health Canada provides strong leadership in the area of health promotion across our nation and should be linked to this type of policy initiative. Municipal authorities also have a key role to play with respect to impacting the health of their respective communities and ought to be included in key policy initiatives that develop collective leadership for health promotion across sectors and jurisdictions.

Second, with respect to health promotion practice, regional health authority executive leaders could benefit from specific education strategies on organizational leadership for health promotion based on assessments of current capacity of this dimension of the Alberta Model in the Alberta Heart Health Project. Such interventions should focus on individual leader development as well as enhancing practices for organizational learning, processes for wellness planning, and the use of champions for health promotion per the key findings of the present study on collective leadership. The ultimate goal of such interventions would be to enhance organizational conditions throughout health authorities for collective leadership for health promotion. As well, health promotion practitioners currently in the field could benefit from both individual leader development and enhanced knowledge about collective leadership for health promotion. Both strategies for executive leaders and service providers could be offered by health promotion education and research settings (e.g., the Centre for Health Promotion Studies, University of Alberta) with the goal of strengthening two-way communication and collaboration between health promotion academia and practice. Building these relationships would foster the creation of integrated and synergistic education and research efforts on organizational leadership for health promotion and other organizational development topics related to health promotion. The ultimate outcomes of such health promotion interventions would be strengthened relevancy of academia and practice with each other and enhanced overall capacity for health promotion.

Finally, in relation to education implications, it is essential that graduates of academic health promotion educational programs understand key aspects of organizational life. Of particular importance are understanding fundamental dynamics involved in the organizational life of a number of settings that could benefit from health promotion approaches as well as understanding leadership and the use of power and influence to enhance organizational change and the development of a health promotion focus in specific settings. This implies a balanced approach in academic education programs on the development of communities and the development of organizations. A greater recognition is therefore needed of the contributions that the broad field of organizational studies can offer; that is, leadership for organizational development melded with health promotion theory and practice. Integration of concepts on organizational development, including leadership, can improve the effectiveness of the health promotion practitioner in a number of organizational settings including: workplace health promotion in the private, public, and voluntary sectors; school health; health promotion of clients and their families in health institutional settings; and health promotion of populations and communities. Integration of such concepts in curricula will also stimulate research at a graduate level and perhaps contribute to research career foci on health promotion and organizational development, thus advancing knowledge in this under-investigated area.

In summary, while the unique internal and external environments of various health organizational levels and contexts must be recognized, broad recommendations from this study can provide guidance to those charged with responsibility for health promotion policy, practice, and education. For leaders it is recommended that:

1. An executive and collective leadership development strategy for health promotion be developed and implemented at the provincial government level to include those departments that impact the determinates of health from a policy perspective.
2. A specific educational strategy on organizational leadership development for health promotion be targeted to health authority executive leadership; i.e., CEOs and board members.
3. Processes which foster communication, coordination, and collaboration on health promotion; i.e., collective leadership, amongst levels in the broad Alberta health system (including appropriate provincial departments and regional health authorities) be implemented to enable longer-term, coordinated approaches for population health promotion by these jurisdictions.
4. Executive leadership within regional health authorities support the development of collective leadership for action on key population health issues through the enhancement of internal practices for organizational learning (L1), processes which integrate wellness planning (L2), and cross-organizational champions for health promotion per the key results of this study.

5. Executive leadership within regional health authorities, through effective organizational learning mechanisms and planning processes outlined in point four above, proactively assure organizational integration and uptake of knowledge and skills from current health promotion initiatives for use in addressing future health issues.
6. An educational series be developed on organizational leadership for health promotion and other organizational development topics for health promotion practitioners currently in the field and other interested stakeholders with the goal of facilitating health promotion practice within health institutional settings.
7. The curricula of graduate level health promotion education programs (i.e., such as that at the Centre for Health Promotion Studies, University of Alberta) include a specific core course on leadership and related organizational development topics as well as integrate such concepts into other core health promotion courses.
8. The Centre for Health Promotion Studies form a partnership with the School of Business at the University of Alberta to foster synergistic approaches on health organization education and research with a focus on leadership for health promotion.

9. Collaborative approaches between health promotion academic (e.g., Centre for Health Promotion Studies) and practice settings be developed and/or strengthened to foster integrated research efforts related to leadership for health promotion and more seamless uptake of the knowledge gained.

In conclusion, the development of *"practices for organizational learning"* as well as processes for *"wellness planning"* are interconnected in the creation of *"workplace milieus"* which are characterized by trust and caring and that encourage critical reflective practice for health promotion. Through "single-loop" and "double-loop" learning processes within health settings, *ongoing development* of the leadership potential of all *"organization members"* can only enhance organizational capacity to achieve critical goals related to the overall health of the population.

APPENDIX I

REVIEW OF THE LITERATURE

APPENDIX I — REVIEW OF THE LITERATURE

I.1 Overview of the Chapter

Building on the concepts introduced in Chapter One, this appendix first provides a more extensive review of important contextual information related to population heart health promotion, the Alberta Model and RHAs. It then offers a more in-depth examination of the theoretical and research literature with regard to leadership and related aspects of organizational life vital to building capacity for health promotion and heart health promotion in health care settings such as RHAs.

I.2 Introduction

Examination of leadership is basic to building knowledge on how to enhance health organization capacity to effectively impact the broader health issues in society. Given their mandate for health promotion in the province of Alberta, the 17 RHAs have accountability for action on the number one health threat to the province's population, cardiovascular disease. Leadership within the context of RHAs as learning organizations is therefore foundational to change processes aimed at strengthening capability for health promotion initiatives that address major issues such as population heart health.

I.3 Contextual Information

This section of the review presents important information on: (1) health promotion (HP) and heart health promotion (HHP), (2) initiatives instructive to HP/HHP at a community-wide or population health level, and (3) the RHA mandate and dilemma related to health promotion. It provides valuable context for Section I.4 on theory related to organizational leadership and other aspects of organizational life important to this thesis.

I.3.1 Health Promotion and Heart Health Promotion

Cardiovascular disease (CVD) is the main cause of death in Canada (78,942 deaths in 1999), and a major cause of disability and of health care costs (over $18 billion a year in the total Canadian economy in 1994) (Heart and Stroke Foundation of Canada, 2002). In 1999, over 35% of all deaths in Canada were caused by heart and blood vessel disease and almost one in four Canadians were estimated to be living with some form of cardiovascular disease (Heart and Stroke Foundation of Canada, 2002). Thus, within a population health framework, heart health is an area where health promotion efforts could contribute to major health gains.

I.3.1.1 The Socio-Environmental Approach in Health Promotion

Health promotion is defined as a process of enabling people to increase control over, and to improve, their health (World Health Organization, 1987). Therefore, health promotion goes beyond individual risk reduction and healthy lifestyle promotion to include change at the socio-environmental level that supports the increased individual likelihood of all societal members to develop and maintain health. Hence, health promotion is, as Epp described in the Health and Welfare Canada document "Achieving Health for All" (1986), multi-faceted involving education, research, legislation, policy coordination and community development. Moreover, it is important to focus on key areas where there is greater potential for gains related to reducing community-wide health issues, for example cardiovascular morbidity and mortality.

Pipe (1995) argues that the magnitude of CVD within our communities could be viewed as the result of the industrial and the agricultural revolutions which created an abundance of food and significantly reduced the level of energy expenditure required for daily living. Further, he suggests that any efforts to grapple with this serious situation require politicians, health professionals, and the general public to understand that creating community norms which encourage healthy behaviours will have the most profound effect on cardiovascular health. In other words, the cardiovascular health of communities will be most effectively impacted through socio-environmental changes, which establish, encourage, and support healthy behaviours as the norm (Pipe, 1995). Similarly, the international heart health movement through the Singapore Declaration (Pearson et al., 1998) and the World Health Organization (2002) describe the CVD epidemic as world wide, but largely preventable and suggests that successful reduction of the burden of CVD requires multiple strategies targeted to socio-environmental contexts.

Therefore, not only RHA organizational knowledge and action on heart health associated risk factors such as physical inactivity, poor nutrition, or tobacco use—but also collaborative action on the risk conditions which underlie CVD—are crucial for the reduction of CVD-related morbidity and mortality in Alberta. These relationships are depicted in Figure 1, the *Determinants of Heart Health Model* (Health Canada, 1993), which proposes a number of physiological, behavioural, and psychosocial risk factors as well as risk conditions for CVD, such as poverty, poor work conditions, discrimination, and large gaps in income between rich and poor.

I.3.2 Initiatives Related to Population Health Promotion

With regard to the emphasis in this thesis on the socio-environmental approach to health promotion, it is instructive to highlight the international healthy cities and heart health movements, which provide examples of approaches that involve the community or population as the focus of intervention. In addition, the health settings approach to health promotion also offers useful insights to this discussion on health promotion in and by health care organizations. These three broad approaches are discussed below.

First, the healthy communities concept is grounded in the central importance of local government in establishing conditions for health and has "...evolved in parallel with and as an application of health promotion" (Hancock, 1993, p. 7). The World Health Organization Healthy Cities Movement has more than 4,500 member communities world-wide using intersectoral cooperation and high-level public participation to assess health and mobilize resources to create healthy cities and communities (Duhl, 1993; cited in Minkler, 1998, p. 3). The Healthy Communities in Canada project was successful in creating a network of over 200 cities, towns, and villages, which has in turn stimulated a number of provincial projects (Hancock, 1993). These initiatives aim to create sustainable environments and processes through which governmental and non-governmental sectors can work in partnership to create healthy public policies, achieve high-level participation in community-driven projects, and, ultimately, reduce inequities and disparities between groups (Tsouros, 1995).

Second, the settings perspective is instructive to this study. While health promotion has pursued several approaches over time (e.g., issues focused and population health), the "settings" approach has become more common recently with its concentration on a particular setting, such as the school, the workplace, or the community (Poland, Green & Rootman, 2000). Shain (1995) argues that this approach examines settings as determinants of health, not simply as avenues through which to educate people about health. Moreover, the Ottawa Charter of the World Health Organization (1987) emphasizes that *health is created and lived by people within the settings of their everyday life; where they learn, work, play and love*.

With respect to leadership, concepts related to the settings approach described below (see Section I.4.1) note the profound impacts of organizational life on individuals and focus on the development of human potential in the organization as a key focus of leadership (Graber & Johnson, 2001; Vaill, 2000). As an example of a settings approach, the health promoting hospitals movement of the World Health Organization initiated in Europe and now diffusing to other parts of the world, emphasizes a significant re-orientation of the way in which hospitals operate. This shift emphasizes the development of healthy workplaces as well as collaborative efforts with the community to improve the overall health of the population. In the past, several Canadian researchers have identified this issue; for example, Hancock (1986) called on hospitals to develop a "community conscience rather than an institutional loyalty" (p. 23). Health and Welfare Canada (1989) also noted that hospitals were ignoring their health promotion role with the attitude "let somebody else do it; we already have too much to do" (p. 40). Thus, the settings approach appears to offer another framework through which organizational leadership could catalyze a health promoting re-orientation of health services.

The third of the three broad approaches is the international heart health movement. Sellers, Crawford, Bullock and McKinlay (1997) provide a useful meta-analysis on understanding the effectiveness of community heart health programs. They argue that health promotion strategies which target the reduction of mean risk factors in an entire population have been important elements in the prevention of cardiovascular disease since the 1970's. They describe community-based programming as the primary tool for the implementation of such intervention strategies which "...use education or environmental change to promote and facilitate the lifestyle and behaviour changes needed to address a particular problem" (p. 1326). For example, early results from the North Karelia Project reported significant decreases in smoking, blood cholesterol, and blood pressure for men in the intervention region compared to men in the reference region in this Finnish study (Puska et al., 1983). The Stanford Five-City Project of California showed similar results after a five-year comprehensive community organization and multifactor health education program (Farquhar et al., 1990).

Sellers and colleagues (1997) also point out the variability in the effectiveness of such programs, citing the Minnesota and the Pawtucket Heart Health Programs, which did not yield consistently significant intervention effects for any risk factor (Carleton et al., 1995; Luepker et al., 1994). Further, these authors assert that this variability has to be understood from a complexity point of view. In others words, it is not just a simple question of "Are community interventions effective or not?", but many questions about what features of community interventions are effective with what populations and under what conditions.

Moreover, there are documented successes that have taken a longer term approach to population health promotion, such as the North Karelia initiative. The

Catalonia Declaration of the International Heart Health Movement (1995) highlighted this Finnish project for its significant results in the reduction of all major risk factors over the course of the 22-year study (1970-1992). For example, at a community level dramatic reductions in overall fat intake and tobacco-use were reported as well as changes at the policy level in health, agriculture, and commerce within the whole of Finland. In the USA, the Stanford Communities Project was also able to demonstrate a decline in estimated future coronary risk of about 15% over the course of its 18-year program (1978-1996). Hence, leadership on ways of thinking about and taking action over the longer term on key health issues is not only important, but can clearly be effective.

In fact, the international heart health movement through the Singapore Declaration (Pearson et al., 1998) posits that the goal of developing a system for effective action on heart health is attainable provided that infrastructure and will to act are in place to build the capacity for success. This implies building individual, organizational, and political will to implement appropriate infrastructures for heart health, which requires leadership. There are varying views on infrastructure. The required infrastructures for health promotion have been described as including: healthy policies, community involvement in programming, reoriented health services towards prevention, and a strong base of research and development (Stachenko, 1994). The Singapore Declaration (Pearson et al., 1998) identifies infrastructure as including leadership, policy, economic, scientific, technical, and physical aspects at the international, national, and local levels.

In Canada, a nationwide research program has been established to encourage provincial health systems to explore strategies for mobilizing community resources and enhancing community participation in heart health promotion activities. The Canadian Heart Health Initiative (CHHI) was initiated to address the consistently high rates of cardiovascular disease amongst all Canadian provinces. The program of research involves nine of the ten provinces using the Canadian-developed *Determinants of Heart Health Model* as a key framework to guide the work (see Figure 2, Chapter Three-Paper Two, p. 74).

The Alberta Heart Health Project was established in 1990 as part of CHHI-Phase 1 focused on surveys of population heart health in each province. The Alberta Heart Health Survey indicated that 57% of the population exhibited one or more of the three major modifiable heart health risk factors: high blood cholesterol, high blood pressure, and use of tobacco (Alberta Health, 1997). In CHHI-Phase 2, the Demonstration Phase, Alberta initiated four projects in 1993 to promote supportive environments for heart healthy lifestyles through the facilitation and evaluation of community-based programs aimed at reducing cardiovascular disease. The CHHI is currently in the third phase of the project, that of dissemination.

In year-three of five, the Alberta Heart Health Project: Dissemination Phase (AHHP) is exploring the process of building capacity for health promotion in the 17 regional health authorities of Alberta, within the context of health settings as learning organizations (Smith et al., 2001). More specifically, through use of a time series design, the AHHP is investigating the effect of the intervention (repeated capacity assessment with feedback and educational interventions) on the development of capacity, the process of change, and the transformation of capacity into heart health promotion actions in regional health authorities.

The AHHP project incorporates thinking articulated in the 1998 Singapore Declaration for Heart Health Promotion (Pearson et al., 1998) about strategies and opportunities for creation of capacity for health promotion action. As mentioned above, a key overarching theory in the Declaration was the delineation of *infrastructure* and *will to act* as the two pivotal components of capacity. Other authors (Hawe et al., 1997) have described capacity as "the value added to a system so that it can sustain any particular health promotion and disease prevention program, and so that it is trained, empowered, and willing to initiate additional health promotion and disease prevention programs" (p. 32). Hence, in the case of heart health, Hawe and colleagues' "value-added" can be defined as the creation or strengthening of the organization's infrastructure and will to act on heart health promotion matters specifically. In this instance, organizational acquisition (i.e., learning) of HP knowledge and skills on heart health, prepares the organization to address health promotion issues on other chronic diseases. This is evidenced by the CHHI in which over 400 organizations participated and have found the heart health focus to be a "...good entry point to address a number of issues including healthy environments and socio-economic determinants of risk related to the prevention of other non-communicable diseases" (Stachenko, 1994, p. 109).

I.3.3 The Alberta Model

Building on these ideas, the Alberta Heart Health Project has reconceptualized the work of the Singapore Declaration to situate capacity building within the context of learning organizations, for example, health care organizations (see Figure 1, Chapter Two-Paper One, p. 34 and Figure 1, Chapter Three-Paper Two, p. 66). The project conceptualizes capacity as the political will to act, and infrastructure (Singapore Declaration, as cited in Pearson et al., 1998) and the leadership necessary to implement heart health promotion initiatives. Thus, the Alberta Model depicts *leadership* as the basis upon which the development of capacity rests. Consistent with the Singapore Declaration, *will to act* and *infrastructure* are the pillars of capacity. The spiral in the model depicts Rogers' (1995) stages of diffusion of innovations within organizations, shown as a nonlinear progression of learning for organizational change. The ultimate outcome of capacity building is increased health promotion actions.

Within capacity, the dimension of will to act is seen to encompass the elements of conviction to act, setting priorities, planning, beginning community mobilization, coordinating with partner organizations, and implementing actions for health promotion. Further, the dimension of infrastructure is depicted as including the elements of organizational policy, intellectual and scientific knowledge, physical and organizational systems, and financial resources for health promotion generally and heart health specifically (Raine-Travers et al. 1999).

Thus, in this model, leadership is a foundational dimension of capacity. It is conceptualized as driving organizational change (1) to develop the organizational will to act and (2) to create an infrastructure for increased organizational (RHA) action on health promotion and heart health specifically (Raine-Travers et al., 1999).

I.3.4 Leadership Challenge in Building Capacity for Health Promotion

Capacity can be seen as the value added (leadership, will to act, and infrastructure) to a system so that it can sustain any particular health promotion and disease prevention program (Hawe et al., 1997). The process of *developing* such capacity can be defined as improving an organization's or population's ability to plan, organize, implement, and sustain comprehensive health promotion interventions (Singapore Declaration, as cited in Pearson et al., 1998). Further, improvement in such organizational abilities necessitates leadership in the acquisition of fundamental knowledge on health promotion, including how to collaborate with other key players on the issues and application of the five generic action strategies for HP as outlined in seminal World Health Organizational documents (Ottawa Charter, 1987; Jakarta Declaration, 1998). As well, knowledge on the specific HP issue of focus is also essential; for example, the aforementioned determinants of heart health in the case of CVD morbidity and mortality. In addition, the five generic action strategies are meant to be particularized to the specific health promotion focus (e.g., heart health) and include building healthy public policy, creating supportive environments, strengthening community action, developing personal skills, and reorienting health services.

In summary, knowledge on the above HP and HHP topic areas are important elements of improving the organization's skill in the processes of assessment, planning, implementation, and evaluation for health promotion. Such organizational learning requires leadership that enables effective processes towards development of innovations in the reorientation of health services to a stronger focus on health promotion.

Furthermore, there are challenges related to leadership for health promotion pertaining to organizational practices. For example, the realization that health promotion, and specifically heart health promotion, should be a priority for RHAs is not sufficient to assure implementation of health promotion action. Leadership is essential to bridge the gap between known advances in knowledge and that which is integrated by the health organization (RHA) and ultimately incorporated into its practices (i.e., institutionalized) (MacLean, 1996). Thus, leadership is integral to all organizational processes, including organizational learning and change (Raine-Travers et al., 1999).

Specifically, the capacity dimensions of will to act and infrastructure require visionary leadership and imply a willingness to lead at different levels in order to coordinate and integrate heart health promotion actions within the organization, within sectors, and intersectorally. In fact, Pearson and colleagues (1998) in The Singapore Declaration call on individuals as well as local, national, and international public and private sector health service organizations to step forward as leaders in promoting heart health. The authors of this international report on heart health conclude that without this broad capability for leadership, neither an infrastructure nor the will to use it will be possible.

I.3.5 Regional Health Authority Mandate and Dilemma on Health Promotion

I.3.5.1 The Mandate

Through the Regional Health Authority Act of 1994, the province of Alberta was divided into 17 geographic health regions, each with five main accountabilities. The first accountability listed in the mandate is to promote and protect the health of the population within the region, and work to prevent disease and injury (Alberta Health and Wellness, 2002). Each RHA is therefore charged with a key role in addressing public health issues. Moreover, the Government of Alberta (2002) has identified the promotion of health as an important area for action. Specifically, "People Goal" number one of the 2002-2005 business plan states that "Albertans will be healthy" and names six key strategies to achieve it. One of these key strategies is a "focus on long-term health gains through increased emphasis on programs to prevent illness and injury, and protect and promote good health" (p. 8). Further, through the "Health Sustainability Initiative", this goal is restated in the number one priority of Cross Ministry Initiatives (2001-02) of the Alberta government. Specifically, this initiative responds to the report *A Framework for Reform: Report of the Premier's Advisory Council on Health* (Mazankowski et al., 2002) which recommends a focus on health promotion/disease prevention, healthy aging, early childhood development, and incentives to stay healthy. Thus, in collaboration with other sectors of the economy, RHA leadership on promoting the health of the population is clearly mandated by government legislation and policy in Alberta.

I.3.5.2 The Dilemma

In accordance with the RHA mandates for promoting the health of the population within their respective geographical boundaries, and further to the generic action strategies for HP outlined above, the development of RHA heart health promotion capacity involves change processes focused on "reorientation" within these RHAs. That is, health promotion has to be viewed as equal with acute, rehabilitation, and continuing care at strategy development and resource allocation tables in the RHAs.

This shift beyond organizational rhetoric to action on health promotion is unlikely to occur until the needs of the acutely ill are effectively addressed in the current system. Unfortunately, the system continues to be strained due in part to provincial government health service cutbacks in the early and mid-1990's, with more restructuring and fiscal constraints looming at the present time.

Nevertheless, the dilemma of CVD persists. That is, it is a major factor in acute and chronic illnesses currently admitted to care in Alberta. However, constricted resources, stretched to address such issues, reduce the probability of development of "will to act" and "infrastructure" for actions targeted to longer-term population heart health gains. Yet, population heart health promotion action is required now in order to prevent future increases in CVD-related disability and mortality and concomitant strain on acute care and other segments of the health system. Clearly, there are many complexities related to tackling the major issue of reduced cardiovascular health in the general population of Alberta.

Hence, this dilemma calls for leadership at multiple levels within RHAs and a multi-prong approach to make the reorientation changes necessary within the current fiscal and policy environments of the health sector. Further, leadership is needed to avoid the potential costs of ineffective interventions. These costs include not only monetary losses associated with the specific intervention, but morbidity and mortality costs among Albertans and negative impacts on the *will to act* on these issues. To intervene effectively requires advances in scientific knowledge on those organizational capabilities that best enable RHA actions to improve the population's heart health. Specifically, the examination of organizational leadership for HP and the relationship of its components to capacity for action on heart health promotion in RHAs are areas of research that could contribute to health gains for Albertans.

The above discussion delineated important contextual information related to this thesis on organizational leadership for HP. It included heart health promotion, related movements, the AHHP and the Alberta Model, and the RHA mandate and dilemma related to health promotion. The next section will focus on leadership and related topics of organizational life important in processes that aim to enhance HP capacity in RHAs. These topics include organizational change theory and the key considerations of learning, politics, and culture in organizational life.

I.4 Overview of Theories Related to Leadership for Health Promotion in RHAs

I.4.1 Leadership Theory

Over the past century, numerous theories of leadership have been proposed and these can be seen as evolving in a number of broad categories, although with many variations and overlaps. Earlier approaches include a focus on the "great man" notion, leader traits, behavioural theories, and two-factor models (e.g., task-oriented vs. consideration-oriented). There has also been a tendency to subsume these older conceptualizations in the development of the later contingency based approaches (such as transactional leadership), situation based theories, and the more sophisticated theories of charismatic and transformational leadership (Hallam, 2001; Yukl & Van Fleet, 1992; Yukl, 1998). The 'new leadership theory', a hybrid of transformational and charismatic leadership (Bryman, 1992), evolved in the early 1990's and encompasses the concepts of inspirational and visionary leadership. As previously explicated by Greenleaf (1977), the notion of spiritual leadership through finding purpose and meaning in organizational life also appears to be gathering influence (Chang, 2001; Graber & Johnson, 2001; Vaill, 2000).

Some classify the earlier contingency or two-factor theories as being concerned with the more rational aspects of leadership *in* the organization and later theories as being more focused on interpersonal aspects related to leadership *of* the organization (Boal & Hooijborg, 2000). Thus, the newer theories contrast with earlier rational theories by a focus on the role of the leader as an influencer in terms of effect on organizational members' values, emotions, and development of potential as well as loyalty of subordinates to the leader and thus to organizational imperatives.

Typically within leadership theory the construct of leadership has been associated with the behaviour of an individual leader with the effects measured at the small group or dyadic level of analysis (House & Podsakoff, 1994; Walman & Yammarino, 1999; Yukl, 1999). For example, widely regarded as a plausible explanation for radical organizational change, charismatic leadership has largely focused on the personality characteristics of leaders, such as charisma (Bass, 1985; Burns, 1978). Some authors have suggested a growing preference for charismatic leadership in recent years related to subordinates' fascination with "heroic leaders" who might lead their organizations safely through major change in the turbulent environments of modern organizations (Pillai & Meindl, 1998).

Bass (2000) and others suggest that organizations today require the broader conceptual base of the transformational and the new leadership theories in order to deal strategically with large-scale change and globalization. Further, in current organizational contexts, leadership is seen as being concerned with how to influence group functioning, organizational culture, and change within multi-faceted, ever expanding environmental complexity. Such modern contexts are seen as requiring a multi-dimensional approach to leadership (Yukl, 1999).

This multi-dimensional approach is illustrated in transformational leadership, which has been described as including two paradigms: (1) transactional with a focus on the current situation and the material needs of organization members; and (2) transformational focused on facilitating the discovery of opportunities for development of organization member self-concept and self-worth (Bass, 2000). A related theory is Greenleaf's servant leadership (1977) which focuses on the leader's responsibility to support and develop the unlimited potential of all organization members. Therefore, rather than operating from a need for power or status, leaders in this view see themselves as servants to the well-being and greater good of all. Also related to this approach, spiritual leadership appears to extend transformational theory to include spiritual well-being of members in the development of human potential. This holistic approach sees organizations as having profound impacts on human development and asserts that leaders must recognize that they are leading people who are spiritually concerned and aware (Vaill, 2000).

Some authors propose leadership team theory as central to the development of human potential in the organization and therefore key to its longer-term success. In this view, the leadership team is seen as more able to create an empowering environment and to operationalize shared vision through multiple deep interconnections throughout the organization (Herb, Leslie & Price, 2001; Krishman & Park, 1998).

In addition to the broad categories listed above, leadership can also be conceptualized as occurring at the individual, dyadic, group, and organizational levels (Yukl, 1999). Most theories and therefore research studies have focused at the dyadic leader-follower interface or the small group-leader level of analysis. That is, these studies concentrate on one leader and his/her influence on one follower or a group of followers, assessed by the subordinate(s) in the relationship (Carless, 1998; Fields & Herold, 1997).

Most often the leadership dimensions tested have been based on the following paradigms: Bass's (1990) new paradigm, the transactional—transformational model (Carless, 1998; Den Harog & Koopman, 1997; Fields & Herold, 1997; Tepper & Percy, 1994); the transactional (Case, 1998; Schriesheim, Neider, Scandura & Tepper, 1992; Wayne, Shore & Liden, 1997; Wilhelm, Herd & Steiner, 1993); the charismatic (Gabriel, 1997; Gardner & Avolio, 1998; Pillai & Meindl, 1998; Shamir, Zakay, Breinin & Popper, 1998; Walman & Yammarino, 1999); or the situational (Howell & Dorfman, 1986; Pitner, N., 1988; Podsakoff, MacKenzie & Bommer, 1996; Podsakoff & MacKenzie, 1997; Pool, 1997). As mentioned above, older theories have tended to be subsumed in these more sophisticated models and are tested or discussed less frequently on an independent basis; for example, behavioural (Mosley, 1998), two-factor (Witte, 1993), and trait theories (Kirkpatrick & Locke, 1991).

Some have argued that Kerr and Jermier's (1978) original "Substitutes for Leadership" Model with its focus on the situation makes an important contribution to the way in which leadership is conceptualized beyond contingency or interpersonal leadership models (Podsakoff & MacKenzie, 1997; Tosi & Kiker, 1997). It posits that the hierarchical superior's ability to exert either positive or negative influence over subordinate attitudes and effectiveness is negated by substitutes reflecting certain aspects of the individual (e.g., subordinate experience and education, professional orientation), the task (e.g., clarity, intrinsically-satisfying), and the organization (e.g., formal inflexible work rules and policies, cohesive work group, spatial distance from leader). However, this model still focuses on measurement at the dyadic or small group level through subordinate assessments of hierarchical leadership and substitutes for such leadership. For example, in their meta-analysis of 22 studies, Podsakoff, MacKenzie, Scott, and Bommer (1996) found empirical evidence (based on 36 independent samples totaling approximately 435 relationships) that "substitutes" variables correlated with many forms of leader behavior and with a number of important criterion variables. That is, combinations of substitutes variables and leader behaviors accounted for a majority of the variance in employee attitudes and role perceptions. Further, on average, substitutes accounted for more of the variance in the criterion variables than did leader behaviors.

Most recent theoretical literature argues that in order to build the leadership competence required for organizational learning and growth to maximize attainment of goals, organizational approaches are needed which involve both individual hierarchical leader development and collective leadership development linked with each other and to a broader organizational strategy (Day, 2001; Hall & Seibert, 1992; Latham & Seijts, 1998). Strategic leadership of the organization and the development of the leadership potential of all organization members in relation to specific imperatives are therefore required. That is, *leader* development is viewed as purposeful investment in individual knowledge, skills, and abilities for greater intra-personal competence, such as self-awareness, self-regulation, and self- motivation. In contrast to this intra-psychic differentiation of the individual, *leadership* development is seen as a cross-organizational integration strategy that focuses on interpersonal competence through opportunities for the individual to apply these self-understandings to organizational imperatives. Specifically, leadership development assists individuals to relate, coordinate efforts, build commitment, and develop broader social networks through the application of individual self-understandings to social and organizational imperatives (Day, 2001). Hierarchical leadership of the organization (i.e., at a strategic or executive level) is thus conceptualized as enabling, catalyzing, or facilitating such organizational actions (Marion & Uhl-Bien, 2001).

These recent conceptualizations shift the investigation of leadership to a broader focus on the organization as a whole and its interpersonal processes that influence actions for organizational goal achievement (Day, 2001; Nirenberg, 2001; Yukl & Van Fleet, 1992; Yukl, 1998). It recognizes the complexity of modern organizations and the impracticality of the controlling approach in such contexts (Marion & Uhl-Bien, 2001). Leadership within the organization is thus seen as being distributed across levels, including informal and formal roles. Collective organizational leadership hence becomes leadership in the organization contrasted with leadership of the organization at a strategic or executive level (Boal & Hooijberg, 2000; Gronn, 2002).

In summary, while there is a large body of literature on leadership, there is a dearth of research based on the most contemporary and holistic conceptualizations. There is, however, evidence to support the measurement of organizational elements beyond hierarchical leadership behaviour in the study of leadership. Limited research is found on organizational leadership with a focus on health promotion, either in the health care sector in relation to patients and families or more generally across sectors of the economy with a focus on workplace health. One rare study at the organizational level of analysis (Witte, 1993) examined leadership using a two-factor approach (i.e., democratic vs. authoritarian styles). It demonstrated that private sector organizations (n= 48) with democratic management styles are more likely to plan, adopt, and/or implement worksite health promotion programs when compared to more authoritarian organizations. Thus, there is a call in the literature (Boal & Hooijberg, 2000; Gronn, 2002) for examination of leadership at a collective organizational level and there appears to be a general gap in the research literature with regards to the study of leadership for health promotion by health organizations.

I.4.2 Organizational Change Theory

Organizational change theory is foundational to the notion of leadership for capacity development in RHAs. Management scientists propose three perspectives on organizational change, each of which contributes to understanding the multiple complexities involved. These are organizational change (1) as punctuated equilibrium, (2) as shifts between archetypes, and (3) as a continuous process. *Punctuated equilibrium* features relatively long periods of convergence or incremental change interrupted by relatively short periods of transformation during which fundamental organizational change occurs. In the *archetypal shifts* model, organizations evolve by moving within or between archetypes, defined as a configuration of systems and structures with a common orientation and interpretive scheme (Hinings, Greenwood & Cooper, 1999). Hence, this view focuses on the broad system level of change; for example, the health-care sector shift from a provider-driven archetype to a population health-driven archetype (Denis, Lamothe, Langley, & Valette, 1999).

The third conceptualization of organizational change depicts *change as a continuous process* over time and at multiple levels of the organization (Pettigrew, 1979; Schein, 1991; Weick & Quinn, 1999; see also Beer & Eisenstat, 1996; Kumar & Thibodeaux, 1990). While the first two theories above offer some perspective, a understanding of change as a continuous process is basic to this study of organizational leadership for health promotion. Pettigrew (1979) defines a continuous change process as one that relates to "…questions of organizational goals, their emergence and transformation, and to changes in systems of beliefs, power relationships, and culture" (p. 571).

Similarly, Weick and Quinn (1999) define change as "an ongoing mixture of reactive and proactive modifications, guided by purposes at hand, rather than an intermittent interruption of periods of convergence" (p. 379). In contrast to the notion of those in authority telling subordinates what to do and thus "managing change", in their view, use of the "logic of attraction" is key to engaging people and drawing them to be part of change. Further, they see organizational change as beginning with personal change in hierarchical leaders themselves; that is, through deep personal development, leaders ought to model personal change and empowerment as the first step in organizational change. Weick and Quinn therefore recommend a focus on "changing" rather than on "change" to capture the dynamic, spiral trajectory of continuous change (p. 382).

Nadler and Tushman (1989) assert that organizational change can be classified into four types based on the scope (incremental or strategic) and the organization's position in relation to the change (anticipatory or reactive). These four different types of organizational change include: tuning, adaptation, reorientation, and re-creation. According to these authors, tuning is incremental change in anticipation of future events, while adaptation is also incremental in that it is focused in only part of the organization, but is in response to external events. Both reorientation and re-creation involve fundamental change at the organization-wide level. However, reorientation is proactive building on the past and thus involves frame-bending change, while re-creation is driven by external events that require radical or frame-breaking changes "in senior leadership, values, strategy, culture and so forth" (p. 196). The reorientation type of change in this model appears to be a good fit with the Ottawa Charter (1986) action strategy of "reorienting the health system" described above in relation to building RHA capacity for heart health promotion.

Alternatively, Nutt and Backoff (1997) distill two types of continuous organizational change processes from their review of the literature: first and second order change, based on the seminal work of Argyris and Schon (1978) on single-loop and double-loop organizational learning (see Section 1.4.2.1 below). Nutt and Backoff describe first order change as centering on organizational growth and single-loop learning processes in which continuous improvement is made to existing approaches. Second order change is described as focusing on transformation of the organization and calls for innovation to lead the change.

Within the management science literature, ongoing strategic change is seen as a requirement for all organizations; however, public-private sector differences require differentiation in the approaches applied (Nutt & Backoff, 1995; Salipante & Golden-Biddle, 1995). That is, competition and economic gain drive strategy realignment in private sector organizations, while strategic change in the public sector is driven by the determination of social needs as well as organizational decisions on responses to those needs, with an emphasis on cooperation to enable service delivery, (Nutt & Backoff, 1995). Thus, in utilizing the literature on change strategy, public sector leaders must take care to modify the dominant private sector approaches to ensure focus on two key public sector dimensions: community-based needs and appropriate organizational responsiveness to those needs. That is, when applying change concepts in the implementation of heart health promotion strategies, RHA leadership ought to emphasize, not only economic imperatives, but also a continuous approach that respects and builds on the organization's strengths in responding to community health needs.

In accordance with the above, organizational learning, power, and culture are three aspects of organizational life closely involved in organizational change process. These components are also strongly linked with organizational leadership. They are of key consideration in any organizational change process and are briefly described below.

I.4.2.1 The Learning Organization

As an underlying supposition related to organizational change, the "learning organization" (Argyris & Schon, 1978; Senge, 1990; Simon, 1969) is related to leadership and the ongoing process of reorienting health settings (i.e., RHAs) to enhance capacity for HP. As previously outlined, successful health promotion capacity building is seen as rendering the organization more competent not only to address the health issue of focus, but to tackle other problems in the future (Hawe et al. 1997). Therefore, building organizational capacity involves organizational learning on such matters and learning organizations are those that expand their institutional capacity to change (Watkins & Marsick, 1993).

Specifically, in their seminal work Argyris and Schon (1978) describe organizational learning as either single-loop or double-loop. The former refers to the use of methods and tools to make continuous improvements in what is already known or being done by its members within the current culture of the organization. In contrast, double-loop learning involves a continuous experimentation and feedback process, which challenges the current assumptions held by its members about what is known or done in the organization. In other words, through double-loop learning processes, patterns are allowed to emerge without being restricted by the current paradigmatic frame of the organization. In fact, efforts are made to diminish the influence of the prevalent organizational worldview of members so that "thinking outside of the box" is facilitated in the development of innovations. Thus, the latter challenges underlying frameworks or paradigms related to the way things get done in the organization, while the former works within current organizational paradigms. An organization's capacity for ongoing change is therefore strongly interconnected with its ability to support its members to learn and grow by either single or double-loop learning, whichever method is appropriate to the situation.

Some authors argue that while organizations learn through their individual members, what organizations know is not a simple sum of what these members have learned (Argyris & Schon, 1996; Lipshitz, 2000). Because learning is a nonlinear process and given the limitations of the measurement tools currently available, these same authors assert that the process of transforming individual level learning into organizational level learning remains unclear. However, it is generally accepted that organizational learning is an important element of the creation of culture and the ongoing socialization of members into the culture to ensure an organizational reality (Nevis, DiBella & Gould, 1995). Further, organizational change processes require learning and leadership is the key to such learning for systematic development of the organization's capability to deliver services (Simmons, 1997).

Further to this discussion on learning organizations, Kofman and Senge (1993) argue that basic shifts are needed in the guiding concepts for contemporary leadership. They propose that central to these shifts is the building of "communities of commitment" where the purpose of learning is not the survival of the organization, but its generativeness. Thus, new ways of thinking, feeling, and being are required for our evolution and to replace the fragmentation, competition, and reactive mindsets that are generally our first responses to overcoming 'problems'. For example, overemphasis on competition results in fear of not looking good. However, to learn we need to admit that we don't know and try to perform activities that we are not good at. In many organizations, not knowing is a sign of weakness and temporary incompetence a character flaw. Thus, through defenses like always displaying our best face in public, solving our problems in isolation, etc., we become skilled at protecting ourselves from the threat and pain that comes with learning. Looking good becomes more important than being good in the competitive mindset. This overemphasis on competition also breeds a 'quick-fix' mentality and negates the discipline needed for longer-term and deeper learning. Moreover, Kofman and Senge (1993) suggest that the fixation on short-term measurable results makes us system blind; that is, unable to see "that many of today's problems come from yesterday's solutions and many of today's solutions will be tomorrow's problems" (p. 13).

The fixation on problem solving illustrates the pervasive reactive stance in management in our society. Kofman and Senge (1993) believe that problem solving is fundamentally different from creating. They see problem solving as trying to make something go away with an impetus for change external to ourselves; while creating tries to bring something new into existence through the impetus of change from within and thus has an orientation to intrinsic desires. The authors caution, "it is a small step from the problem solving orientation to a system of management that is dominated by fear" (p. 7). And from there it is a small step to a pervasive leadership strategy, that of creating a crisis, or the perception of a crisis, to produce change. They conclude that little learning occurs in this kind of change. To summarize, in the view of Kofman and Senge (1993), this evolution from fragmentary thinking to systemic thinking, from competition to cooperation, and from reactiveness to creating, is a "Galilean Shift" to the primacy of the whole.

> Galileo's heliocentric revolution moved us from looking at the earth as the center around which all else revolved to seeing our place in a broader pattern. In the new systems worldview, we move from the primacy of pieces to the primacy of the whole, from absolute truths to coherent interpretations, from self to community, from problem solving to creating. Thus, the nature of the commitment required to build learning organizations goes beyond people's typical 'commitment to their organizations.' It encompasses commitment to changes needed in the larger world and to seeing our organizations as vehicles for bringing about such changes. (p. 4)

The above holistic and systemic thinking about organizations thus provides guidance for becoming a learning organization for health promotion. Leaders at every level need to think broadly about the interdependency of organizational variables; that is, how taking action in one area impacts on other parts of the system (Nevis, DiBella & Gould, 1995). Bass (2000) suggests that an emphasis on transformational leadership skills fosters development of a learning organization described as being an adaptable culture that continually (1) assesses the environment and the effect of change, (2) engages in the creation of alternatives that improve performance, and (3) abandons those things which do not work.

Hawe and colleagues (2000) have proposed 11 indicators of capacity for organizational learning specific to health promotion. They are "To what extent does the organization you are working with":

- Reward people for a variety of different and broad activities, innovation and experimentation,
- Have open information systems,
- Have participative decision-making structures (e.g., planning and policy),
- Have adaptable structures,
- Flexible in making mutual adjustments across departments,
- Have people scanning the horizon for new information and developments,
- Engage in inter-organizational learning,
- Have a learning culture and climate,
- Have a learning approach to strategy or policy development,
- Have accountability systems that help improve operations as they go along,
- Encourage self-development opportunities for its staff.

These indicators are therefore useful in the measurement of organizational-wide leadership processes and practices which support health promotion innovations.

I.4.2.2 Political Aspects of Organizational Change

Power is closely linked with leadership in organizational life. There is also increasing acceptance that organizational politics are inextricably linked with organizational change (Hill, 1995). Consequently, understanding the dynamics of power and influence as natural components of organizational life is important to the effectiveness of any organizational change effort.

Hill (1995) defines power as “the potential of an individual or group to influence another individual or group” and influence as “the exercise of power to change the behavior, attitudes, and/or values of that individual or group” (p. 1). She posits that to be effective in the long run, leaders need to not only do what is effective for the individual, but also act in an ethical manner and consider the impact for the organization. Further, this author sees political conflict as being at the core of how organizations function, which challenges the leadership not to eliminate it to but manage it effectively as a key ingredient for creativity and innovation.

The above view suggests that it is essential to carefully assess the power dynamics in a given situation to determine who holds the power and *how things really get done* in the organization. However, Hill (1995) suggests that power dynamics are in continual flux and often embedded or taken for granted. The following periodic political assessments are therefore recommended to support organizational change: (1) identify the interdependencies among relevant parties, (2) determine their sources of power, (3) analyze the relevant differences amongst the parties, and (4) analyze the broader context including major alliances or rivalries, likely responses of key players (potential for political conflict), and precipitating or prevention factors.

Kumar and Thibodeaux (1990) suggest a pragmatic examination of the role of power and influence from the perspective of change agents (internal or external consultants) assisting with planned change. They propose, “matching degrees of political involvement to the level of desired change” at a first, second or third level of change (p. 357). In their view, organizational change is a continuum in which the level of change sought is based on the nature of the intended outcomes; that is, unit problem solving (first level), major change in select subsystems (second), and organization-wide change (third).

First level change involves *political awareness* on the part of change agents in order to understand elements of the unit or department and tacitly support specific aspects to create impetus for change, which is geared towards improving the effectiveness of the unit. Thus, changes are being made within the existing culture of the unit and the organization. Second level focuses on major reorganization of several subsystems or departments. The authors (Kumar & Thibodeaux, 1990) recommend that change agents focus on *political facilitation* at this level of change by assuming an influencer role to advocate for the change, through strategies to develop its rationale and shared understanding on the major issues. The change agent therefore focuses on interacting with those whose interests might be affected by the change (those who could be supportive or opposed) and attempts issue management by downplaying or shining a light on those issues that could help or hinder change efforts. Finally, third level change strategies involve change agents in the facilitation of question and debate of core organizational values, beliefs, and systems. The aim is to develop new interpretive schemes and new structures. Thus, at this level, political intervention is required by change agents in order to secure support from several powerful coalitions within the organization.

Kumar & Thibodeaux (1990) argue that, because of the magnitude of the change at the third level, garnering support is an essential first step as at least some of the current power holders will lose their dominant position and could impede the implementation process. They suggest that having gained such support, change agents can then set out to develop awareness, the change plan and intended outcomes with the goal of facilitating everyone's involvement. Thus, in this model the breadth of political action builds along a continuum, with each successive level of organizational change incorporating additional political assessments and actions in order to strengthen the overall approach and gather political support in the implementation of planned change.

I.4.2.3 Organizational Culture

Pettigrew (1979) describes organizational culture as being a combination of beliefs, ideology, language, ritual, and myth. In other words, in his view culture encompasses symbols forged by the people in the organization who are the "creators and managers of meaning" (p. 572). Further to this, Schein (1992) defines culture as "the set of shared, taken-for-granted implicit assumptions that a group holds and that determines how it perceives, thinks about, and reacts to its various environments" (p. 236). Moreover, these authors assert that most members of a culture never question or examine these underlying assumptions and indeed are not even aware of their own culture until they encounter a different one.

Pettigrew (1979) and Schein (1996) advise that the invisible, but powerful meanings and beliefs ascribed through cultural mechanisms, act as constraints or determinants of the organization's ability to effectively handle change issues related to purpose, integration, and commitment. Moreover, Tushman and O'Reilly III (1996) posit that complex organizations are prone to develop "structural and cultural inertia—the organizational equivalent of high cholesterol" (p. 18). Structural inertia is described as the result of the strong inter-linkages between structures, systems, and processes in large complex organizations. A change in one part of the structure therefore has a domino effect across the organization and tends to dilute the change effort or mitigate against it in favour of the status quo. Hence a great deal of time and money is required to implement change in such structural complexity.

Further, these authors (Tushman & O'Reilly III, 1996) argue that cultural inertia, due to its implicit nature, is even more pervasive than structural inertia. That is, culture is invisible and intangible because norms, values, and lessons learned by the organization become embedded or institutionalized in shared expectations about how things are to be done. This embeddedness makes cultural inertia more insidious and more difficult to address in any change process.

In summary, culture is one of the most powerful, invisible, and stable forces operating in organizations. Consequently, its aspects are very important to consider when undertaking any organizational change effort, especially in the very complex environments of health care organizations. Leadership of change efforts such as heart health capacity building, must take into account not only the more rational and tangible aspects of structures and clinical/technological expertise, but also the cultural and expressive components of the organization. Examination of the implicit assumptions held by its members, including the leaders, in relation to organizational symbols, beliefs, language, ritual, and myth are required to create conditions for single-loop and/or double-loop organizational learning. Leadership is clearly required to enable such learning conditions via the development and facilitation of cross-organizational interpersonal processes involving organizational members to stimulate and support the creation of innovations. With respect to health promotion and heart health promotion, such organizational processes include, for example, health promotion assessment, planning, implementation, and evaluation, as well as the pragmatic use of change agents such as champions for HP.

To summarize, this section reviewed organizational change theory together with relevant ideas on the learning organization, power, and culture as key aspects of organization life. Leadership for health promotion therefore requires keen understanding and skillful drawing on these microdynamic organizational forces to influence strategic imperatives for HP/HHP and the development of conditions for the creation of HP/HHP innovations. What follows presents a discussion on levels of membership within health organizations, as another aspect of organization life closely linked with leadership, change, and HP/HHP actions by RHAs.

I.4.3 Levels of Membership in Health Organizations

Further to the above, the modern health care organization (e.g., RHA) is extremely complex internally. That is, a vast and growing number of different health professions practice within its boundaries providing a complex array of services dealing with a range of essential life and death issues requiring the latest in technology for assessment, diagnosis, treatment, rehabilitation, and ongoing care. It also is mandated to facilitate disease prevention and health promotion on a range of important community health issues. As well, other professional groups have influential positions in sustaining organizational operations; for example, accountants, information technology experts, engineers, and communications professionals to name but a few of the key support functions required in the modern health organization context.

By virtue of the complex contexts in which the above professional groups enact their roles, the members of each organizational level of an RHA may have a different understanding and perspective in relation to leadership and organizational capacity for health promotion. For example, it is widely accepted that, in complex organizations such as RHAs, board members provide governance functions in relation to setting the policy framework and overall business plan for the organization, in consultation with the chief executive officer (CEO). Thus, board member perspectives may be quite different from those at other levels of the RHA, especially frontline practitioners who are more directly involved in direct health service delivery.

Kouzes and Mico (1979) propose domain theory in which public or human service organizations are distinctly different from the private sector and are dominated by three domains: policy domain, management domain, and service domain. In application to RHAs, the policy domain includes board members, the management domain is comprised of senior and middle managers, and a variety of health profession practitioners form the service domain. These authors posit that each domain has different interests and ethics that are in conflict with each other, thus this theory highlights power and values differentials across the domains. Extrapolating from this, Hawe and colleagues (2000), suggest that, in this view, practitioners will have better success by using conflict models of change to influence organizational agendas to include action on health promotion. That is, rather than use of consensus building models, the likelihood of success is greater via campaign approaches such as lobbying, pressure tactics, and using external events and agencies as opportunities to draw internal attention to the issues.

Schein (1992) posits cultural differences among levels of the organization. He proposes that at least three generic cultures of management function within complex organizations (such as RHAs): the operators, the engineers, and the executives. The executives can be seen as senior/middle management, the engineers are those with specialized technical and professional expertise, generally found within the middle layers of an organization, and operators are frontline workers (service practitioners). In this depiction, both executive and 'engineer' or professional group members are seen as being strongly influenced by external systems. That is, members of various occupational groups within the levels of an organization have experienced strong socialization processes during their professional education and continue to be influenced by professional/executive literature and associations (Schein, 1992). Extrapolating from this thinking, frontline members (operators) may also be similarly influenced, depending on their qualifications (i.e., professional credentials) and other affiliations such union membership.

Given these various theoretical perspectives and other potential contextual influences, there may well be differences in the perspectives of members at different levels of the organization. Level of organizational membership is therefore an important feature to consider in the examination of organizational leadership for HP.

I.5 Defining Organizational Leadership for HP

Leadership is a highly complex phenomenon with numerous definitions depending on a wide variety of academic and practitioner perspectives (Nirenberg, 2001). Yukl and Van Fleet (1992) advocate a focus on leadership as a process, whereby influence is intentionally exerted on the organization for the achievement of goals. Webster's Dictionary (1993) defines influence as the act, process, or power of producing an effect without apparent exertion of tangible force or direct exercise of command. Thus, to intentionally influence is to purposely sway thinking or promote the ascendancy of certain notions or concepts. In this study, the emphasis is on leadership as a multi-faceted process. Leadership thus becomes a pervasive function enacted by members at different levels of the organization, which is essential to the attainment of shared organizational objectives (Nirenberg, 2001).

Organizational leadership for HP is a multi-dimensional process in which members, across multiple levels, exert influence on:

- The development of heart health promotion objectives and action strategies,
- The implementation of action strategies to achieve heart health objectives,
- Organizational practices which strengthen group involvement and commitment to ongoing health promotion efforts, and
- The development of a learning culture to sustain up-to-date health promotion actions by the organization.

Thus, Yukl and Van Fleet's (1992) definition for leadership has been particularized to a heart health promotion focus and modified to incorporate Hawe and colleagues' (1997) notion of "multiplying health gains" via development of organizational members to tackle HHP in order to build and sustain capacity for action on this issue as well as on future HP issues.

I.6 Summary of the Review

Synthesis of concepts from the above review points to leadership as a process that includes organizational practices, which support meaningful development and involvement of its members. Key aspects of such leadership can be said to include (1) participative processes to enable shared vision and to build a sense of passion, commitment, and well-being in the people, (2) development of cultural norms of empathy, integrity, and respect for the individual in order to build trusting and therefore more effective work relations, and (3) facilitation of learning across the organization to ensure that relevant advances in knowledge are integrated into organizational practices related to specific imperatives.

Hence, leadership is foundational for influencing these developments in RHAs through ongoing change processes at various levels across the organization and in relation to other systems and sectors. Further, the dimensions of *will to act* and *infrastructure* (per the Alberta Model) require leadership skills vested in a variety of members and imply a willingness to lead at different organizational levels in order to institutionalize heart health actions in an RHA. Thus, leadership becomes a process whereby a number of members take on the role of influencing others to actions that achieve organizational goals on heart health.

Leadership for HP/HHP requires the development of knowledge about heart health risk factors and conditions (Health Canada, 1993) as well as organizational learning and application of the Ottawa Charter generic action strategies (World

Health Organization, 1987 and 1998). The authors of the Singapore Declaration (Pearson et al., 1998) conclude that without such leadership, neither an infrastructure nor the will to use it in population heart health actions will be possible.

While there is a large body of literature on leadership in general, which confirms its importance to organizational life, there is a lack of literature specifically describing *organizational leadership* and its components in relation to *health promotion* action. Furthermore, the research on leadership over past decades reveals many different approaches to the logic underlying the construct of leadership and thus, studies of leadership have employed measures on a variety of dimensions, depending on the theory hypothesized. A number of factors have been suggested based on the leader-follower relationship, however, very few studies to date have focused on leadership as a process distributed throughout the organization. This has precipitated a call in recent leadership literature for investigations using this type of approach.

Moreover, there is a gap in the literature with regards to measures of *leadership* related to health promotion practice and *health care settings*. Leadership has been described as the "biggest blind spot" in the field of health promotion practice in that we "…do not understand leadership, we do not research leadership, we do not invest in leadership" (Catford, 1997, p. 4). Therefore, study of leadership is basic to the development of the field of health promotion. Such research requires the development of psychometrically robust measures to enable examination of the relationship of distributed *organizational leadership* to *health care setting actions* on health promotion in general and heart health promotion specifically.

In conclusion, clearly there are many complexities related to tackling the major issue of reduced cardiovascular health in the general population of Alberta. Creating effective interventions on this issue requires a multi-dimensional approach, however, the 17 RHAs have mandated leadership roles, in collaboration with others, to act on this health issue. Collective organizational leadership is important to the effectiveness of this RHA work and a key area for advancement in scientific knowledge with respect to improving the health of Albertans.

APPENDIX II

METHODS

APPENDIX II — METHODS

II.1 Overview of the Chapter

The purpose of this appendix is to provide a full account of the methods used in the studies described in chapters two and three. Detailed below are: psychometric analyses of the leadership scales, examination of the relationship of leadership factors with respondent group scores and outcome variables related to HP/HHP actions, and subsidiary analysis of the relationship of the three dimensions of organizational capacity for HP (Alberta Model). All statistical analyses were undertaken using the Statistical Package for the Social Sciences (SPSS) 10.0 Program. The measurement scales of the AHHP Organizational Capacity Survey instrument used in the two studies are provided in Appendix V.

II.2 Research Ethics Approval

This research complied with appropriate ethical standards in the treatment of its human subjects. Research ethics approval for the overall study is covered by the certificate granted for the Alberta Heart Health Project: Dissemination Phase by the Health Research Ethics Board (Panel B) at the University of Alberta. A copy of the original approval certificate is provided in Appendix IV.

II.3 Instrument Development

Considerations of theory and psychometric analyses guided the development of valid and reliable scales for measuring organizational leadership for health promotion. The initial leadership scales were established *a priori* based on the literature (Hawe et al., 2000) and the work of other Canadian heart health projects. Notably, a 2-day "think-tank" was held with CHHI researchers from the provinces of Saskatchewan, British Columbia, Ontario and Manitoba with the purpose of discussing these provincial projects and sharing the assessment tools for each. During the initial development of the leadership scales, the candidate was involved in item analysis from the research instruments of other provinces, primarily the

Saskatchewan instrument. Field-testing of survey items with key health promotion stakeholders in these projects contributed face and content validity of the items identified for use in the AHHP instrument. A table was constructed in which specific items were identified as relating to the construct of leadership. After some modifications, the leadership items were then compiled in an initial questionnaire on organizational leadership for health promotion.

As described in Chapter Two, the initial instrument was then subjected to a Focus Group test (n=5) to verify content validity. Subsequent modifications were made to the instrument, which was then pilot tested on a purposive sample from three health promotion based organizations in Alberta (n=16), representing local, provincial and national level organizations, but excluding RHAs. The revisions from this testing process included minor editing and changes in the order of items and response choices. The instrument was also sent to 37 key individuals, who were part of the CHHI, to verify the content validity of the leadership dimensions

All leadership items were compiled into a questionnaire addressing organizational capacity. The capacity survey required the individual respondents to reflect on the organization as a whole and its capacity to do heart health promotion.

The final version of the leadership component of the baseline *AHHP Organizational Capacity Survey* consisted of two scales (33 items) designed to measure organizational practices that strengthen involvement *in the development and implementation* of HP objectives and strategies as well as a *learning culture to sustain* such involvement. These *a priori* scales were designed to elicit the perceived magnitude of organizational leadership for health promotion in RHAs and included the following.

- Current level of organizational practices for health promotion — one scale comprised of 27 items, based chiefly on the Saskatchewan field-tested instrument.
- Current level of practices for organizational learning — one scale composed of 6 items based on Hawe and colleagues (2000) eleven-item "*Capacity for Organizational Learning Checklist*" modified for AHHP research purposes.

Similarly, scales for organizational ***will to act*** and scales for ***infrastructure*** were developed by other researchers in the AHHP (Anderson, Plotnikoff, Raine, Cook, Smith & Barrett, under review; Plotnikoff, Anderson, Raine, Cook & Barrett, under review). Five-point Likert type scales were used to operationalize all items of these scales. Thus, based on the Alberta Model described in Chapter One, all items together represented the three dimensions of organizational capacity for health promotion (i.e., leadership, will to act and infrastructure) in the baseline AHHP Organizational Capacity Survey.

II.4 Participants

In collaboration with the AHHP site project coordinator in each RHA, a convenience sample of 158 representatives from three organizational levels across the 17 Regional Health Authorities in Alberta were identified to complete the final instrument. The response rate was 91% (n=144) and included board members (n=30), senior/middle management (n=58), and service providers (n=56). Each respondent completed an individual assessment of perceived organizational leadership for HP/HHP. The majority of respondents were females (85%) ranging in age from 40 to 49 years (M= 3.2, SD= .88). Study participants had worked an average of 4.5 years (SD= 4.4) in their current position.

II.5 Study Aim One – Psychometric Analyses of Leadership Scales

Scales were developed using the following procedures. As described above, global scales were established a priori based on the literature and those previously developed in other provincial research efforts of the Canadian Heart Health Initiative. Scale structures were then tested using factorial analytical techniques (Tabachnick & Fidell, 1996). Principal component analysis (PCA) was used to confirm the unidimensionality of theoretically predetermined scales and/or to reduce the large number of variables into more parsimonious and manageable components. Frequency endorsement, Cronbach's alpha for internal consistency reliability, and Pearson's correlation coefficients were used to further test scale unidimensionality. This series of tests established the internal consistency reliability and construct validity of the leadership scales per study aim one. These procedures are outlined in more detail below.

First, examination of normality in the dataset included scrutinizing each leadership variable for skewness and kurtosis, as well as checking its mean and sample size using frequency distributions in the form of stem and leaf graphs as well as histograms. Relatively good dispersion of scores for all variables was noted with some skewness to the left (negatively skewed) and positive kurtosis. However, overall, each reasonably approximated a normal curve and thus none were transformed.

Each respondent was required to have answered at least two-thirds of the items pertaining to a particular scale to be included in the PCA (Plotnikoff, 1994). Ten cases were identified as borderline or not meeting this standard, however on further PCA analysis the difference between inclusion and removal of these cases was negligible. Due to the small sample size, these cases were retained and any missing data were replaced with the individual variable mean (Tabachnick & Fidell, 1996).

Next, Bartlett's test of sphericity and the Kaiser-Meyer Olkin (KMO) test of sampling adequacy, were performed and confirmed the appropriateness of conducting PCA with this sample (Norusis, 1993; Tabachnick & Fidell, 1996). As a general rule, factor analytic techniques require a minimum of five to ten cases for every variable tested. However, Bartlett's test of sphericity is considered strongly predictive of sampling adequacy when the number of variables per case is four or five, as was the situation in this sample (Tabachnick & Fidell, 1996). The Bartlett's test for sphericity examines the correlations amongst variables, which must be related to each other for the factor model to be appropriate. That is, if the correlations between variables are small, it is not very likely that they share common factors. Thus, the value of the statistic for sphericity should be large and the associated significant level small (Norusis, 1993). With all variables attaining a sphericity value of 2057.606 and significance of $p<.000$, this test showed the correlation matrix to be at an adequate level to perform PCA. The KMO measure of sampling adequacy was also calculated for the 33 leadership variables. This measure provides a value between 0 and 1, where small values indicate that use of factor analytic techniques may not be appropriate, since the correlations between variables cannot be explain by the other variables (Norusis, 1993). The KMO test revealed a value of 0.94 for the set of variables, thus well above the 0.50 considered satisfactory to explain the correlations between variables (Norusis, 1993). Therefore, the KMO test of sampling adequacy provided additional evidence for the appropriateness of conducting PCA with this sample (Tabachnick & Fidell, 1996).

Once the sampling adequacy was confirmed, a scree plot was observed to estimate the ideal number of factors to be included (Cattell, 1966). Scree tests indicated slope discontinuities within each variable-set graph; that is, higher eigenvalues are quite vertical tapering off to more horizontal smaller eigenvalues. Next, eigenvalues were examined and components conserved if their respective eigenvalues were greater than or equal to 1.0.

PCA with Kaiser normalization and varimax rotation (orthogonal rotation) were then performed on the original components extracted (Tabachnick and Fidell 1996). The PCA extraction procedure derives factors from "real" data and therefore these represent measured variables (Tabachnick & Fidell, 1996). As well, the procedure maximizes independent sources of variance in the inter-item matrix, which in combination with orthogonal (varimax) rotation delineates factors clearly in relationship to corresponding sets of interrelated variables (Wilson, 1989).

Based on a combined analysis of all items from both original leadership scales, the inter-item correlation matrix provided evidence of numerous correlations higher than the 0.30 item suppression level further testifying to the adequacy of the sample for PCA. An item was considered to belong to a given component if its correlation was 0.40 or higher and differences in cross loadings on opposing factors were 0.20 or greater (Plotnikoff, 1994). In some instances, cross loading differences less than 0.20 were accepted if the item contributed important content validity to the subscale (Plotnikoff, 1994). Two PCA analyses were conducted to trim items using the above parameters, and then based on analysis of the final solution, the appropriate number of components were conserved and interpreted.

Cronbach's alpha testing was used to estimate the internal consistency of each of the leadership scales. After PCA and reliability analyses, scales were created and named. This final solution was determined by examination of item content congruency as well as PCA and reliability test results (Tabachnick & Fidell, 1996). Last, bivariate correlation testing of the new scales using Pearson's correlation coefficient was performed to examine their uniqueness from each other.

II.6 Study Aim Two: Analyses of Perceived Organizational Leadership Scale Ratings by Organizational Respondent Groups

Analyses conducted to answer the two research questions for Study Aim Two included one-way analysis of variance (ANOVA) and non-parametric tests for comparison of the means of independent samples. Details are provided by research question below.

Research Question #1 – Are there differences between respondent groups on ratings of organizational leadership for health promotion across Alberta's RHAs?

Examination of comparability of the four leadership components between the three respondent level groups (i.e., board members, senior/middle management and service providers) across all 17 Alberta RHAs was undertaken using one-way analysis of variance (ANOVA) procedures. The Levene statistic established significance values *greater* than 0.05 for the leadership components of L1 *Practices* *for Organizational Learning,* L2 *Wellness Planning, and* L4 *Organization Member Development.* Thus, these three component variances are equal and meet the homogeneity of variances assumption for this test (Norusis, 1993). Pairwise comparisons of group mean differences around the overall mean (Between Groups variation) were then conducted for these three components to determine the significance level of the F-test for each. Because significance levels for all three indicated that at least one of the respondent level groups was significantly different from the others ($p<0.05$), post hoc multiple comparisons using the Bonferroni test were carried out to specify which group(s) differed. This technique, appropriate for one-way ANOVA, compares all possible pairs of means in such a way that the probability of making one or more Type I errors is reduced (i.e., concluding that a mean difference exists when in fact they are the same) (Neter, Kutner, Nachtsheim & Wasserman, 1996).

Research Question #2 – Are there differences between respondent groups on ratings of organizational leadership in RHAs with high and with low baseline scores on organizational capacity for HP?

Comparisons of respondent group scores on the four leadership components in RHAs with high and low scores on global capacity for HP were conducted using non-parametric techniques. High and low HP capacity RHAs were measured via mean global organizational scores of *will to act*, *infrastructure*, and *leadership* for each RHA (n=17) per the Alberta Model. Defined cut off points for high, medium and low HP capacity RHAs were established through examination of a histogram based on the mean scores for each of these three dimensions of capacity for each RHA. With the highest possible mean capacity score established as 25, RHAs with low capacity were determined by mean scores of 17 or less and high capacity RHAs by mean scores of 19 or more. Respondents in the four lowest (n= 31) and four highest (n= 31) scoring RHAs on global capacity for HP were then identified.

The shape and location of the distributions of these high and. low capacity RHAs were then analyzed using the Mann-Whitney U test. This test revealed significant values ($p<0.05$) indicating that these two RHA groups have different locations for each of the four leadership components. Respondent level group scores on the four leadership components were then analyzed separately for high capacity and for low capacity RHAs using the Kruskal-Wallis Test. This non-parametric alternative to one-way ANOVA was used to reveal significant differences ($p=<.05$) between respondent level groups per sample (i.e., high and low capacity) on each of the four leadership components. Kruskal-Wallis Ranks were then observed to determine which group(s) differed.

II.7 Study Aim Three: Analyses of the Relationships of Leadership Components with Outcome Variables Measuring RHA Actions for HP/HHP

To answer the three research questions of study aim three, multiple linear regression analyses techniques were used to describe and identify path model predictors of HP/HHP actions by all 17 Alberta RHAs. The 19 dependent variables tested are presented in Chapter Three-Paper Two (see Table 2, p. 79) and outlined below following a description of the independent variables used in all regression equations for the three research questions. Subsequently, a more detailed description of path modeling is presented including multiple linear regression technique, the process for obtaining standardized regression equations, and screening procedures.

II.7.1 Variables

II.7.1.1 Independent Variables for Research Questions 1, 2 & 3

The four leadership components validated in a previous study (Barrett et al., under review) were used to assess perceived organizational leadership for HP/HHP. These composite variables included: Practices for organizational learning; Wellness Planning; Workplace milieu; and Organization member development. These developed measures of organizational leadership for health promotion were used in the path analyses to determine the relative association of each measure with RHA actions for HP and HHP.

As typical major demographic variables, respondent *age* and *gender* were incorporated in each analysis. The pragmatic use of change agents such as champions for HHP, are posited as an important influence in managing the politics of organizational change (Kumar & Thibodeaux, 1990). The presence of a *"Champion for HHP"* was considered to be a variable that could have a direct or indirect effect on the criterion variables related to HP/HHP actions in the 17 RHAs, and therefore was included in all equations. These background variables served to adjust the results of the relationships between the leadership measures and the dependent variables and to examine their relationships with the leadership measures.

To answer the three questions of study aim three, the following outlines the outcome measures that were used in each analysis in combination with the above independent variables.

II.7.1.2 Dependent Variables for Research Questions 1, 2 & 3

Research Question #1 – What is the Relationship of Leadership with Actions for HP across all Alberta RHAs in the past year?

Aggregated scores of RHA actions on health promotion activities constituted the outcome variables tested in the path model analyses for this question. RHA *actions on health promotion* were assessed using self-assessment scores on organizational involvement over the past 12 months in activities related to the Ottawa Charter generic action strategies (World Health Organization, 1987), HP assessment, HP planning, HP implementation, and HP evaluation.

Research Question #2 – What is the Relationship of Leadership with Actions for HHP across all Alberta RHAs in the past year?

Aggregated scores of RHA actions on a number of heart health promotion activities constituted the outcome variables tested in the path model analyses for this question. RHA *actions on heart health promotion* were also measured by self-assessment scores on organizational involvement in such activities over the past 12 months. Based on the Determinants of Heart Health Model (see Chapter Three-Paper Two, Figure 2, p. 74), HHP activities were assessed using scores on the following risks: physiological factors, behavioural factors, psychosocial factors, and environmental conditions. In addition, RHA actions for HHP in the past 12 months were assessed using scores on involvement in various settings for each of the three behavioural risk factors (i.e., tobacco use, poor nutrition, and physical inactivity).

Research Question #3

This question focused on the relationship of leadership with global variables for HP and HHP actions across all Alberta RHAs in the past 12 months. Aggregated scores of RHA actions on health promotion and heart health promotion activities were thus combined into penultimate outcome variables and tested in the path model analyses. These three global outcome variables included: a) aggregated score of involvement in various settings on behavioural risk factors for HHP; b) aggregated score of HP activities on assessment, planning, implementation and evaluation; and c) aggregated score of actions on all heart health risk factors and conditions based on the Determinants of Heart Health Model.

II.7.2 Data Screening

II.7.2.1 Assumptions

Four assumptions about the data have to be met in multiple linear regression and were considered in this analysis.

1. Independence is the assumption that all observations are separate entities from each other. This is very hard to ensure in the social sciences (Tabachnick & Fidell, 1996).
2. Homoscedasticity is the assumption that the variance of the outcome variable is the same for all levels of the predictor variables and can be assessed using a scatter plot. This is tested through analyzing the residuals, which are the *difference* between the predicted and the measured DV score. If this assumption is met, then the residuals should be distributed normally around the line.

3. The third assumption, normality, assumes that the residuals are normally distributed conditional on the set of predictors (e.g., the factors of leadership with the DV). If the criteria are met through examination of a normal probability plot, they should follow a straight line from the bottom left hand corner to the upper right of the graph.
4. Finally, linearity is the assumption that a linear relationship exists between the IDs and the DV.

Tabachnick and Fidell (1996) specify a minimum of 10 cases per independent variable for conducting multiple regression analysis. Examination of each regression equation revealed a minimum of n=118 pairwise cases in these analyses. Histograms of the residuals established normality of the data while scatter plots of the residuals versus the predicted values provided acceptable patterns confirming linearity and homoscedasticity of the data. Given that all equations approximated a normal curve, missing data were replaced with the individual variable mean to preserve sample size. At 144 cases the study sample was ample to perform multiple regression analyses. As well, outliers were examined using the Cook's distance procedure, which measures influence (i.e., the product of leverage and discrepancy) and assesses the change in regression coefficients when a case is deleted, thus measuring the case impact. Influence scores larger than 1.00 are suspected outliers (Tabachnick & Fidell, 1996). For all regression equations Cook's distance mean scores were less than 1.0 with most outliers laying within ± 3.3 SD, the generally accepted rule for diagnosing cases as extreme outliers (Neter, Kutner, Nachtscheim & Wasserman, 1996). Thus, while several outliers were identified, none were deleted or transformed.

II.7.2.2 Assessment of Collinearity

Collinearity occurs when an independent variable is nearly linearly dependent on one or more of the other independent variables. When it occurs then at least one of the variables must excluded in the analysis, otherwise unstable regression estimates are produced which invalidate the results (Tabachnick & Fidell, 1996). Specifically, screening of the independent variables was done through analysis of the correlation matrix for all pairs of each equation using Pearson's correlation coefficient. An absolute value of 0.70 or more meant that one of the two variables had to be removed from the analysis. All pairs in these analyses resulted in a Pearson's correlation coefficient of 0.665 or less and thus were at satisfactory levels for regression analysis. As well, tolerance test results and condition indices were examined with each regression equation to verify that the independent variables were not highly correlated amongst themselves. In summary, using these criteria, all 19 regression equations tested at satisfactory levels for conduction of regression analyses.

II.7.3 Path Models and Multiple Linear Regression

The path model in Chapter Three-Paper Two (see Figure 3, p. 78) serves as the general framework for these analyses. The model does not propose cause and effect between variables. Path analysis uses standardized regression equations to calculate the path coefficient for each equation tested.

Multiple linear regression analysis is a statistical technique to determine the relationship between a dependent variable (DV) and multiple independent variables

(IVs) (Tabachnick & Fidell, 1996). However, the findings from these procedures do not necessarily indicate a causal relationship between the variables. The purpose of regression is three-fold: (1) to describe a relationship between a DV and multiple Ivs; (2) to control a relationship; or (3) to predict relationships. In this thesis, regression analysis is used to describe the relationship; that is, to identify the associations of the leadership variables with HP/HHP actions in RHAs.

Caution is important in the interpretation of the effects found, as they may be purely correlational and perhaps only coincidental. As well, consistency of the data in testing the model only lends support to the theory and suggests a possible explanation of the set of relationships that it describes. The word *predicto*r is used below in the generic sense to describe the standard procedure involved in regression analysis using the backward stepwise method.

Regression equations permit the value of a dependent variable to be predicted given particular values of the independent variables. Specifically, the goal in regression procedures is to determine a regression coefficient for each variable in the equation called a β coefficient.

The β coefficient of a given variable is the fraction of a standard deviation change in the dependent variable caused by a standard deviation change in the independent variable with all other independent variables in the equation held constant. Positive β coefficient values equate to an increase in the value of the dependent variable. Conversely, negative values mean that an increase in the given independent variable correspond to a decrease in the dependent variable. Thus, the relative values of the β coefficients are a way of comparing the relative effects that the corresponding independent variables have upon the dependent variables.

Not all independent variables in a theoretical model necessarily have a significant effect upon the specified dependent variable. Backward stepwise multiple regression analysis was the method used to establish the various associations between the dependent and independent variables in all 19 equations of this study aim.

This method includes all variables in an initial equation and then deletes variables using F-statistic criterions to reduce each model by eliminating the least significant variable in successive stages (Tabachnick & Fidell, 1996). In this case, all seven potential predictors are entered together at the beginning and whether a variable remains in the equation or is removed is determined by the F-statistic. The F-statistic is a measure of the significance of the prediction of a given variable. Therefore, at each step the model is re-evaluated to ensure that all variables in the equation have sufficient statistical significance to remain. If the F-statistic did not reach statistical significance for a given variable, then that variable was removed from the model, with the least significant being removed at each step. At each step, the variable that has the lowest standardized regression coefficient is removed as long as the residual mean square term in the equation continues to be reduced. Thus, backward stepwise regression removes one variable at a time until the best predictor equation is determined.

The final form of the regression equation is determined to be at the stage where all remaining β values are found to be significant. The 0.05 percent level is used to judge the significance of standardized partial regression coefficients (*β* coefficients). This corresponds to a β greater than 1.645 times its standard error (Plotnikoff, 1994).

The β values are used as the measures of relationship between variables. That is, generally in linear regression, the focus is to determine the best subset of predictor variables and the corresponding best-fitting regression model for describing the relationship between a dependent variable and independent variables. Specifically, together β coefficients predict a value for the specific dependent variable, which is as close as possible to the value of this variable obtained by measurement (Tabachnick & Fidell, 1996). R squared (R^2) is the coefficient of multiple correlation which provides a summary of how well the regression line fits the data. This shows the percentage of the total variation in the dependent variable, which can be 'explained' or predicted by variation in the independent variables (Tabachnick & Fidell, 1996). Thus, in this study aim, the goal was to quantify the relationships between the four independent variables of leadership and each dependent variable representing HP or HHP action by all 17 RHAs in Alberta, adjusting for age, gender, and presence of an HHP champion.

II.8 Subsidiary Question: Relationships Between the Global Leadership, Will to Act and Infrastructure Dimensions of Organizational Capacity for HP

A subsidiary analysis using Pearson's correlation coefficients explored the relationships of the global measures of leadership, will and infrastructure per the Alberta Model. The Pearson correlation coefficient is a measure of linear association between two variables and assumes that the data are normally distributed.

To establish this condition, composite variables were first constructed for previously validated measures of *will to act* and *infrastructure* in the baseline AHHP

Organizational Capacity Survey. Global variables were created through aggregated scores of the 21 components for global will to act (Anderson et al., under review) and the 12 components of global infrastructure (Plotnikoff et al., under review). The global leadership measure was also created through aggregation of the four leadership components (i.e., L1 Practices for organizational learning, L2 Wellness planning, L3 Workplace milieu, and L4 Organization member development) developed in our previous study (Barrett et al., under review).

Kolmogorov-Smirnov significance values at 0.20 for each of the global measures of leadership, will to act, and infrastructure then established that they approximated a normal curve, based on a significance value above 0.05. The Shapiro-Wilk test also verified normal distribution of the data with significance values achieving 0.11 and above. As well, histograms and stem and leaf plots confirmed the normality of all three global measures. A correlation matrix was then produced to determine the preliminary relationships between these global measures representing the three dimensions of capacity for HP (i.e., leadership, will to act, and infrastructure) in the Alberta Model.

APPENDIX III

REFERENCES

APPENDIX III – REFERENCES

Alberta Finance. (2002). *Budget 2002- Government of Alberta Business Plan 2002-05*. Retrieved October 31, 2002 from: http://www.finance.gov.ab.ca/publications/budget/budget2002/govbp.html

Alberta Health and Wellness. (2002). *Alberta's Health Care System: Regional Health Authorities*. Retrieved October 31, 2002 from: http://www.health.gov.ab.ca/system/rhas/index.html

Alberta Health and Wellness. (2001). *Population Projections for Alberta and its Health Regions: 2000-2030*. Retrieved November 2, 2002 from: http://www.servicealberta.ca/pages/category.asp?EK=601&PublicationLetter=P

Alberta Health. (1997). *The Alberta Heart Health Evaluation Report*. Edmonton, AB: Author.

Anderson, D., Plotnikoff, R., Raine, K., Cook, K., Smith, C. & Barrett, L. (under review). The development of scales to measure "will" to promote heart health within health organizations. Alberta Heart Health Project, University of Alberta, Edmonton, Canada.

Argyris, C. & Schon, D.A. (1978). *Organizational Learning: A theory of action perspective*. Reading, MA: Addison-Wesley.

Argyris, C. & Schon, D.A. (1996). *Organizational Learning II*. Reading, MA: Addison-Wesley.

Barrett, L.L., Plotnikoff, R.C., Raine, K. & Anderson, D. (under review). Development of measures of organizational leadership for health promotion by regional health authorities. Alberta Heart Health Project, Centre for Health Promotion Studies, University of Alberta, Edmonton, Canada.

Bass, B.M. (1985). *Leadership and Performance Beyond Expectations*. New York: Free Press.

Bass, B.M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics*, 18 (3), 19-31.

Bass, B.M. (2000). The future of leadership in learning organizations. *Journal of Leadership Studies*, 7 (3), 18-35.

Bass, B.M. & Avolio, B.J. (1989). *Manual for the Multifactor Leadership Questionnaire*. Palo Alto, CA: Consulting Psychologists Press.

Beer, M. & Eisenstat, R. (1996). Developing an organization capable of implementing strategy and learning. *Human Relations*, 49 (5), 597-619.

Boal, K.B. & Hooijberg, R. (2000). Strategic leadership research: Moving on. *Leadership Quarterly*, 11 (4), 515-549.

Boal, K.B. & Whitehead, C.J. (1992). In R. L. Phillips & G. Hunt (Eds.), *Strategic Leadership: A multiorganizational-level perspective* (pp. 237-255). Westport, CT: Quorum.

Bridges, W. (1980). *Transitions.* Reading, MA: Addison-Wesley Publishing Company.

Bridges, W. (1991). *Managing Transitions: Making the most of change*. Reading, MA: Addison-Wesley Publishing Company.

Bryman, A. (1992). *Charisma and Leadership in Organizations*. London: Sage.

Burns, J.M. (1978). *Leadership*. New York, NY: Harper & Row.

Carless, S. (1998). Assessing the discriminant validity of transformational leader behaviour as measured by the MLQ. *Journal of Occupational and Organizational Psychology*, 71 (4), 353-358.

Carleton, R.A., Lasater, T.M., Assaf, A.R., Feldman, H.A. & McKinlay, S. (1995). The Pawtucket Heart Health Program: Community changes in cardiovascular risk factors and projected disease risk. *American Journal of Public Health*, 85 (6), 777-785.

Case, R. (1998). Leader member exchange theory and sport: Possible applications. *Journal of Sports Behavior*, 21 (4), 387-394.

Catford, J. (1997). Developing leadership for health: Our biggest blindspot. *Health Promotion International*, 12 (1), 1-4.

Cattell, R.B. (1966). The scree test for the number of factors. *Multivariate Behaviour Research*, 1, 245-276.

Chang, R. (2001). Turning into organizational performance. *Training & Development, May.* Retrieved November 22, 2001 from: http://www.findarticles.com/cf_0/m4467/5_55/74830042/print.jhtml

Conger, J.A. (1998). The folly of knowing an elephant by its tail. In F. Dansereau and F.J. Yammarino (Eds.) *Leadership: The Multiple-Level Approaches (Contemporary and Alternative)*, vol 24, part B (ch. 9, pp. 77-83) of Monographs in Organizational Behavior and Industrial Relations. Stanford, CT: JAI Press Inc.

Conger, J.A. & Kanugo, R.N. (1987). Toward a behavioral theory of charismatic leadership in organizational settings. *Academy of Management Review*, 12 (4), 637-647.

Day, D.V. (2001). Leadership development: A review in context. *Leadership Quarterly*, 11 (4), 581-613.

Den Hartog, D., Van Muijen, J. & Koopman, P. (1997). Transactional versus transformational leadership: An analysis of the MLQ. *Journal of Occupational and Organizational Psychology*, 70, 19-34.

Denis, J-L., Lamothe, L., Langley, A. & Valette, A. (1999). The struggle to redefine boundaries in health care systems. In D. Brock, M. Powell and C.R. Hinings (Eds.), *Restructuring the Professional Organization: Accounting, Health Care and Law*. London: Routledge.

Dorfman, P. W. & Howell, J. P. (1997). Leadership in Western and Asian countries: Commonalties and differences in effective leadership processes across cultures. *Leadership Quarterly*, 8 (3), 233-274.

Farquhar, J.W., Fortmann, S.P., Flora, J.A., Taylor, B., Haskell, W.L., Williams, P.T., Maccoby, N. & Wood, P.D. (1990). Effects of community-wide education on cardiovascular disease risk factors: The Stanford Five-City Project. *Journal of the American Medical Association*, 264 (2), 359-365.

Fields D. & Herold, D. (1997). Using the Leadership Practices Inventory to measure transformational and transactional leadership. *Educational and Psychological Measurement*, 57 (4), 569-579.

Gabriel, Y. (1997). Meeting god: When organizational members come face to face with the supreme leader. *Human Relations*, 50 (4), 315-333.

Gardner, W. & Avolio, B. (1998). The charismatic relationship: A dramaturgical perspective. *Academy of Management Review*, 23 (1), 32-58.

Gibb, C.A. (1954). Leadership. In G. Lindzey (Ed.), *Handbook of social psychology*, vol. 2 (pp. 877-917). Reading, MA: Addison-Wesley.

Gibb, C.A. (1958). An interactional view of the emergence of leadership. *Australian Journal of Psychology*, 10 (1), 101-110.

Gordon, R.D. (2002). Conceptualizing leadership with respect to its historical—contextual antecedents to power. *The Leadership Quarterly*, 13, 151-167.

Graber, D.R. & Johnson, J.A. (2001). Spirituality and health care organizations. *Journal of Healthcare Organizations*, 46 (1), 39-52.

Greenleaf, R. (1977). *Servant Leadership: A journey into the nature of legitimate power and greatness*. New York: Paulist Press.

Gronn, P. (1999). Substituting for leadership: The neglected role of the leadership couple. *Leadership Quarterly*, 10 (1), 41-62.

Gronn, P. (2000). Distributed properties: A new architecture for leadership. *Educational Management and Administration*, 28 (3), 371-338.

Gronn, P. (2002). Distributed leadership as a unit of analysis. *Leadership Quarterly*, 13, 423-451.

Hall, D.T. & Seibert, K.W. (1992). Strategic management development: Linking organization strategy, succession planning, and managerial learning. In D. H. Montross & C. J. Shinkman (Eds.), *Career development: Theory and practice* (pp. 255-275). Springfield, IL: Charles C. Thomas.

Hall, N. & Best, J.A. (1997). Health promotion practice and public health: Challenge for the 1990s. *Canadian Journal of Public Health*, 88, 409-415.

Hallam, S. (2001). *Leadership Matters: Research about leadership is important*. Retrieved November 22, 2002 from: http://www.uakron.edu/cba/lead/tools.html

Hamilton, N. & Bhatti, T. (1996). *Population Health Promotion: An integrated model of population health and health promotion*. Ottawa, ON: Health Canada.

Hancock, T. (1986). Creating a healthy community: The preferred role for hospitals. *Dimensions in Health Service*, 63 (6), 22-23.

Hancock, T. (1993). The evolution, impact and significance of the healthy cities/healthy communities movement. *Journal of Public Health Policy*, Spring, 5-18.

Harris, J.H. (1975). *A Primer of Multivariate Statistics*. New York: Academic Press, Inc.

Hawe, P., King, L., Noort, M., Jordens, C. & Lloyd, B. (2000). *Indicators to help with capacity building in health promotion*. Retrieved December 2, 2001 from: http://www.health.nsw. gov.au/public-health/health-promotion/pdf/indicators/capbuild.pdf

Hawe, P., Noort, M., King, L. & Jordens, C. (1997). Multiplying health gains: The critical role of capacity building within health promotion programs. *Health Policy*, 39, 29-42.

Health and Welfare Canada, Health Services and Promotion Branch. (1986). *Achieving Health for All: A framework for health promotion. (The Epp Report)*. Ottawa, ON: Author.

Health and Welfare Canada, Health Services and Promotion Branch. (1989). *Knowledge Development for Health Promotion: A call for action*. Ottawa, ON: Author.

Heart and Stroke Foundation of Alberta & N.W.T. (October, 1997). *Quick Facts.* Edmonton: Author.

Heart and Stroke Foundation of Canada. (1999). *The Changing Face of Heart Disease and Stroke in Canada*. Ottawa: Author.

Heart and Stroke Foundation of Canada. (2002). *The Changing Face of Heart Disease and Stroke in Canada*. Ottawa: Author.

Heart and Stroke Foundation, Health Statistics, Division of Statistics Canada and Health Canada. (1997). *Heart Disease and Stroke in Canada*. Ottawa: Author.

Health Canada. (1993). *The Determinants of Heart Health Model*. Ottawa, ON: Author.

Herb, E., Leslie, K. & Price, C. (2001). Teamwork at the top. *The McKinsey Quarterly*, 2, 32-43.

Hill, L.A. (1995). Power dynamics in organizations. *Harvard Business School*, #9-494-083, 1-14.

Hinings, C.R., Greenwood, R. & Cooper, D. (1999). The dynamics of change in large accounting firms. In D. Brock, M. Powell, and C.R. Hinings (Eds), *Restructuring the Professional Organization: Accounting, Health Care and Law*. London: Routledge.

House, R.J. & Aditya, R. (1997). The social scientific study of leadership: Quo vadis? *Journal of Management*, 23, 409-474.

House, R.J. & Podsakoff, P.M. (1994). Leadership effectiveness: past perspectives and future directions for research. In: J. Greenberg (Ed.), *Organizational behavior: the state of the science* (pp. 45-82). Hillsdale, NJ: Lawrence Erlbaum Associates.

Howell, J. & Dorfman, P. (1986). Leadership and substitutes for leadership among professional and nonprofessional workers. *Journal of Applied Behavioral Science*, 22 (1), 29-46.

Hunt, J.G. (1999). Transformational/charismatic leadership's transformation of the field: An historical essay. *Leadership Quarterly*, 10, 129-144.

Jung, C.G. (1969). *The Archetypes and the Collective Unconscience*. (RF. C. Hull, trans.) 2nd ed. NY: Princeton University Press.

Kaplan, A. (1994). *Leadership and Management*. Retrieved August 19, 2000 from: http://www.cdra.org.za/publications/various_articles.

Kaplan, R. (1990). Character change in executives as "re-form" in the pursuit of self-worth. *Journal of Applied Behavioral Science*, 26 (4), 461-481.

Kerr, S. & Jermier, J. (1978). Substitutes for leadership: Their meaning and measurement. *Organizational Behavior and Human Performance*, 22, 375-403.

Kets de Vries, M. (1994). The leadership mystique. *Academy of Management Executive*, 8 (3), 73-92.

Kim, D.H. (1993). The leader with the "beginner's mind". *Health Care Forum Journal,* July/August.

Kirkpatrick, S.A. & Locke, E.A. (1991). Leadership: Do traits matter? *Academy of Management Executive,* 5 (2), 48-60.

Kofman, F. & Senge, P.M. (1993). Communities of commitment: The heart of learning organizations. *Organizational Dynamics*, 22 (2), 4-25.

Kotter, J.P. (1982). *The General Managers*. New York: MacMillan Free Press.

Kouzes, J.M. & Mico, P.R. (1979). Domain theory: An introduction to organisational behaviour in human service organisations. *Journal of Applied Behavioural Analysis*, 15, 449-469.

Kouzes, J.M. & Posner, B.Z. (1987). *The leadership challenge: How to get extraordinary things done in organizations.* San Francisco: Josey-Bass.

Krishnan, H.A. & Park, D. (1998). The influence of top management team leadership on corporate refocusing: A theoretical framework. *The Journal of Leadership Studies, 5* (2), 50-61.

Kumar, K. & Thibodeaux, M.S. (1990). Organizational politics and planned organization change. *Group & Organization Management*, 15 (4), 357-366.

Langan-Fox, J. & Tan, P. (1997). Images of a culture in transition: personal constructs of organizational stability and change. *Journal of Occupational and Organizational Psychology*, 70 (3), 273-294.

Latham, G.P. & Seijts, G.H. (1998). Management development. In P. J. D. Drenth, H. Thierry & Associates (Eds.), *Handbook of work and organizational psychology,* vol.3, 2nd ed. (pp. 257-272). Hove, UK: Psychology Press/Erlbaum.

Lipshitz, R. (2000). Chic, mystique, and misconception: Argyris and Schon and the rhetoric of organizational learning. *Journal of Applied Behavioral Science*, 36 (4), 456-474.

Luepker, R.V., Murray, D.M., Jacobs, D.R., Mittelmark, M.B., Bracht, M., Carlaw, R., Crow, R., Elmer, P., Finnegan, J., Folsom, A.R., Grimm, R., Hannan, P.J., Jeffery, R., Lando, H., McGvern, P., Mullis, R., Perry, C., Pechacek, T., Pirie, P., Sprafka, J.M., Weisbrod, R. & Blackburn, H. (1994). Community education for cardiovascular disease prevention: Risk factor changes in the Minnesota Heart Health Program. *American Journal of Public Health,* 84 (9), 1383-1393.

MacLean, D. (1996). Positioning dissemination in public health policy. *Canadian Journal of Public Health*, 87, 40-43.

Marion, R. & Uhl-Bien, M. (2001). Leadership in complex organizations. *The Leadership Quarterly*, 12, 389-418.

Mazankowski, D., Bryan, L., Cranston, L., Crowley, B.L., Douglas, L., Evans, J., Graham, J., Low, M.D., Nickerson, K., O'Brien, A., & Smith, E. (December, 2001). *A Framework for Reform: Report of the Premier's Advisory Council on Health.* Retrieved October 31, 2002 from: http://www.gov.ab.ca/home/health_first/pach.cfm

Miller, J. & Israel, E. (2002). Improving corporate performance measures to drive results. *Financial Executive*, 18 (5), 51-51.

Minkler, M. (1998). Introduction and overview. In M. Minkler (Ed.), *Community organizing & community building for health* (ch.1, pp. 3-19). New Brunswick, NJ: Rutgers University Press.

Mintzberg, H. (1973). *The Nature of Managerial Work*. New York: Harper & Row.

Mosley, A. (1998). A behavioral approach to leadership: Implications for diversity in today's organizations. *Journal of Leadership Studies*, 5 (1), 38-46.

Nadler, D.A. & Tushman, M.L. (1989). Organizational frame bending: Principles for managing reorientation. *The Academy of Management EXECUTIVE*, 111 (3), 194-204.

Neter, J., Kutner, M.H., Nachtsheim, C.J. & Wasserman, W. (1996). *Applied Linear Statistical Models, Fourth Edition*. Chicago: Times Mirror Higher Education Group.

Nevis, E.C., DiBella, A.J. & Gould, J.M. (1995). Understanding organizations as learning systems. *Sloan Management Review*, Winter, 73-85.

Nirenberg, J. (1993). *The Living Organization: Transforming teams into workplace communities*. San Diego: Pfeiffer & Co.

Nirenberg, J. (2001). What leadership crisis? *Across the Board: The business knowledge network*, September/October. Retrieved November 21, 2001 from: http://www.conference-board.org/atb/article/nirenbergSeptoct01.cfm

Noel, A. (1989). Strategic cores and magnificent obsessions: Discovering strategy formation through daily activities of CEOs. *Strategic Management Journal*, 10 (special issue), 33-49.

Nord, W.R. & Jermier, J.M. (1994). Overcoming resistance to resistance: Insights from a study of the shadows. *Public Administration Quarterly*, 17 (4), 396-403.

Norusis, M. & SPSS Inc. (1993). *SPSS for Windows: Professional Statistics, Release 6.0.* Chicago, IL: SPSS Inc.

Nunnally, J.C. (1978). *Psychometric Theory*. New York, NY: McGraw-Hill.

Nutt, P.C. & Backoff, R.W. (1995). Strategy for public and third-sector organizations. *Journal of Public Administration Research & Theory*, 5 (2), 189-112.

Nutt, P.C. & Backoff, R.W. (1997). Organizational transformation. *Journal of Management Inquiry*, 6 (3), 235-254.

Nutt, P.C., Backoff, R.W., & Hogan, M.F. (2000). Managing the paradox of change. *Journal of Applied Management Studies*, 9 (1), 5-32.

O'Loughlin, J., Elliott, S.J., Cameron, R., Eyles, J., Harvey, D., Robinson, K. & Hanusaik, N. (2001). From diversity comes understanding: Health promotion capacity-building and dissemination research in Canada. *Promotion & Education,* September Supplement, 40-43.

Oppenheim, A.N. (1992). *Questionnaire Design, Interviewing and Attitude Measurement*. New York, NY: St. Martin's Press.

Paluck, E.C., Williamson, C.D. & Frankish, C.J. (2001). The use of population health and health promotion research by health regions in Canada. *Canadian Journal of Public Health*, 92 (1), 19-22.

Pearson, T.A., Shankle Bales, V., Blair, L., Emmanuel, S.C., Farquhar, J.W., Low, L.P., MacGregor, L.J., MacLean, D.R., O'Connor, B., Pardell, H. & Petrasovits, A. (1998). The Singapore declaration: Forging the will for heart health in the next millennium. *CVD Prevention* 1, 182-199.

Pedhazur, E.J. (1982). *Multiple Regression in Behavioral Research*. NY: Holt, Rinehart & Winston.

Pettigrew, Andrew M. (1979). On studying organizational cultures. *Administrative Science Quarterly,* 24, 570-581.

Pillai, R. & Meindl, J. R. (1998). Context and charisma: a "meso" level examination of the relationship with organic structure, collectivism, and crisis to charismatic leadership. *Journal of Management,* 24 (5), 643-662.

Pipe, A. (1995). Cardiovascular disease prevention: Talking occurs at all levels - does understanding? *Canadian Journal of Cardiology*, 11 (Suppl A: January), 2A-3A.

Pitner, N. (1988). Leadership substitutes: Their factorial validity in educational organizations. *Educational and Psychological Measurement*, 48, 307-315.

Plotnikoff, R.C. (1994). An application of protection motivation theory to coronary heart disease risk factor behaviour in three Australian samples: Community adults, cardiac patients, and school children. Unpublished doctoral dissertation, University of Newcastle, Newcastle, Australia.

Plotnikoff, R., Williams, P., & Fein, A. (1999). The effects of a school capacity-building intervention on children's heart health: Evaluation of the Coalfields Health Heartbeat School Project in New South Wales, Australia. *Health Education Journal*, 58, 389-400.

Plotnikoff, R.C., Anderson, D., Raine, K., Cook, K. & Barrett, L. (under review). Scale development of individual and organization infrastructure for heart health promotion in Regional Health Authorities. Alberta Heart Health Project, University of Alberta, Edmonton, Canada.

Podakoff, P.M., Niehoff, B.P., MacKenzie, S.B. & Williams, M.L. (1993). Do substitutes for leadership really substitute for leadership? An empirical examination of Kerr and Jermier's situational leadership model. *Organizational Behavior and Human Decision Processes*, 54 (1), 1-44.

Podsakoff, P. & MacKenzie, S. (1995). An examination of substitutes for leadership within a levels-of-analysis framework. *Leadership Quarterly*, 6 (3), 289-328.

Podsakoff, P. & MacKenzie, S. (1997). Kerr and Jermier's substitutes for leadership model: Background, empirical assessment, and suggestions for future research. *Leadership Quarterly*, 8 (2), 117-132.

Podsakoff, P., MacKenzie, S. & Bommer, W. (1996). Transformational leader behaviors and substitutes for leadership as determinants of employee satisfaction, commitment, trust, and organizational citizenship behaviors. *Journal of Management*, 22 (2), 259-298.

Podakoff, P.M., Niehoff, B.P., MacKenzie, S.B. & Williams, M.L. (1993). Do substitutes for leadership really substitute for leadership? An empirical examination of Kerr and Jermier's situational leadership model. *Organizational Behavior and Human Decision Processes*, 54 (1), 1-44.

Poland, B.D., Green, L.W. & Rootman, I. (2000). *Settings for health promotion: Linking theory and practice.* Thousand Oaks, CA: Sage Publications, Inc.

Pool, S.W. (1997). The relationship of job satisfaction with substitutes of leadership, leadership behavior, and work motivation. *Journal of Psychology*, 131 (3), 271-283.

Posner, B.Z. & Kouzes, J.M. (1988). Development and validation of the Leadership Practices Inventory. *Educational and Psychological Measurement*, 48, 483-496.

Posner, B.Z. & Kouzes, J.M. (1993). Psychometric properties of the Leadership Practices Inventory—Updated. *Educational and Psychological Measurement*, 53, 191-199.

Puska, P., Salonen, J.T., Nissinen, A., Tuomilehto, J., Vartiainen, E., Korhonen, H., Tanskanen, A., Ronnqvist, P., Koskela, K. & Huttunen, J. (1983). Change in risk factors for coronary heart disease during 10 years of a community intervention programme (North Karelia project). *British Medical Journal*, 287, 1840-1844.

Raine-Travers, K., Dyck, R., McLaughlin, K., Collins-Nakai, R., Ness, K., Plotnikoff, R. & Dressendorfer, R. (September, 1999). *The Alberta Heart Health Project Dissemination Phase - Heart health promotion knowledge transfer and uptake: An examination of organizational capacity building and its impact on health promotion actions.* (Available from the Alberta Heart Health Project office, Centre for Health Promotion Studies, University of Alberta, Edmonton, Canada.)

Rogers, E. M. (1995). *Diffusion of Innovations (4th ed.).* New York: Free Press.

Rosen, M. (2000). *Turning Words, Spinning Worlds: Chapters in organizational ethnography*. Amsterdam: Harwood Academic Publishers.

Salipante, P.F. & Golden-Biddle, K. (1995). Managing traditionality and strategic change in nonprofit organizations. *Nonprofit Management & Leadership*, 6, (1), 3-20.

Schein, E.H. (1991). What is culture? In P. Frost, L. Moore, M. Louis, C. Lundberg, and. J. Martin (Eds.), *Reframing Organizational Culture* (ch. 17, pp. 243-253). Newbury Park: Sage Publications.

Schein, E.H. (1992). *Organizational Culture and Leadership*, 2nd Edition. San Francisco: Jossey-Bass.

Schein, E.H. (1996). Culture: The missing concept in organization studies. *Administrative Science Quarterly*, 41 (2), 229-241.

Scholtes, P.R. (1999). The new competencies of leadership. *Total Quality Management*, 10 (4&5), S704-S710.

Schon, D. (1983). *The Reflective Practitioner: How professionals think in action*. New York, NY: Basic Books.

Schriesheim, C.A. (1997). Substitutes-for-leadership theory: Development and basic concepts. *Leadership Quarterly*, 8 (2), 103-108.

Schriesheim, C., Neider, L., Scandura, T. & Tepper, B. (1992). Development and preliminary validation of a new scale (LMX-6) to measure leader-member exchange in organizations. *Educational and Psychological Measurement*, 52, 135-147.

Schuller, T. (2001). The complementary roles of human and social capital. *ISUMA, [Canadian Journal of Policy Research*], 2 (1), 18-24.

Sellers, D.E., Crawford, S.L., Bullock, K. & McKinlay, J.B. (1997). Understanding the variability in the effectiveness of community heart health programs: A meta-analysis. *Social Science and Medicine*, 44 (9), 1325-1339.

Senge, P.M. (1990). *The Fifth Discipline - The Art and Practice of the Learning Organization*. New York, NY: Doubleday.

Shain, M. (1995). *Issues and Settings: A framework for discussion*. A discussion paper on behalf of HealthCanada.

Shamir, B., Zakay, E., Breinin, E. & Popper, M. (1998). Correlates of charismatic leader behavior in military units: Subordinates' attitudes, unit of characteristics, and superiors' appraisals of leader performance. *Academy of Management Journal*, 41 (4), 387-409.

Sieber, S.D. (1973). The integration of fieldwork and survey methods. *American Journal of Sociology*, 78 (6), 1335-1359.

Simmons, M. (1997). Leadership: The key to continual improvement. *Total Quality Management*, 8 (2/3), S273.

Simon, H.A. (1969). *Sciences of the Artificial*. Cambridge, MA: MIT Press.

Smircich, L. (1983). Concepts of culture and organizational analysis. *Administrative Science Quarterly*, 28, 339-358.

Smith, C., Raine, K., Anderson, D., Dyck, R., Plotnikoff, R., Ness, K. & McLaughlin, K. (2001). A preliminary examination of organizational capacity for heart health promotion in Alberta's regional health authorities. *Promotion & Education,* September Supplement, 40-43.

Stachenko, S. (1994). National opportunities for health promotion: The Canadian experience. *Health Promotion International*, 9 (2), 105-110.

Starbuck, W.H. (1983). Organizations as action generators. *American Sociological Review*, 48, 91-102.

Tabachnick, B. & Fidell, L. (1996). *Using Multivariate Statistics*, 3rd Edition. New York, NY: HarperCollins.

Tepper, B. & Percy, P. (1994). Structural validity of the Multifactor Leadership Questionnaire. *Educational and Psychological Measurement*, 54 (3), 734-744.

The Catalonia Declaration. (1995). *Investing in Heart Health, 2nd International Heart Health Conference (Barcelona, Spain).* Retrieved August, 21, 2002 from: http://www.hc-sc.gc.ca/hppb/ahi/hearthealth/pubs/caled/cled07.htm

The Singapore Declaration. (1998). Forging the will for heart health in the next millennium, 3rd International Heart Health Conference (Singapore). *CVD Prevention*, 1 (3), 182-199.

Thorndike, R.L. (1982). *Applied Psychometrics*. Boston, MA: Houghton Mifflin.

Tosi, H. & Kiker, S. (1997). Commentary on "Substitutes for Leadership." *Leadership Quarterly*, 8 (2), 109-112.

Tourish, D. & Pinnington, A. (2000). Transformational leadership, corporate cultism and the spirituality paradigm: An unholy trinity in the workplace? *Human Relations*, 55 (2), 147-172.

Tremblay, M.S. & Willms, J.D. (2000). Secular trends in the body mass index of Canadian children. *CMAJ*, 163 (11), 1429-33.

Tsouros, A. (1995). The WHO healthy cities project: State of the art and future plan. *Health Promotion International* 10 (2), 133-141.

Tushman, M.L. & O'Reilly III, C.A. (1996). Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Management Review*, 38 (4), 8-30.

Vaill, P. (2000). Introduction to spirituality for business leadership. *Journal of Management Inquiry*, 9 (2), 115-116.

Veenstra, G. (2001). Social capital & health. *ISUMA [Canadian Journal of Policy Research]*, 2 (1), 72-81.

Walman, D. & Yammarino, F. (1999). CEO charismatic leadership: Levels-of-management and levels-of-analysis effects. *Academy of Management Review*, 24 (2), 266-299.

Watkins, K.E. & Marsick, V.J. (1993). *Sculpting the Learning Organization: Lessons in the art and science of systematic change*. San Francisco: Jossey-Bass.

Wayne, S., Shore, L. & Liden, R. (1997). Perceived organizational support and leader-member exchange: A social exchange perspective. *Academy of Management Journal*, 40 (1), 82-111.

Weick, K. & Quinn, R. (1999). Organizational change and development. *Annu. Rev. Psychol.*, 50, 387-418.

Weick, K. (1995). *Sensemaking in Organizations*. London: Sage.

Wilhelm, C. Herd, A. & Steiner, D. (1993). Attributional conflict between managers and subordinates: An investigation of leader-member exchange effects. *Journal of Organizational Behavior*, 14, 531-544.

Wilkins, A.L. & Bristow, N.J. (1987). For successful organization culture, honor your past. *The Academy of Management Executive*, 1 (3), 221-229.

Wilson, H.S. (1989). *Research in Nursing*, 2nd Edition. Redwood City, CA: Addison-Wesley Publishing Company, Inc.

Witte, K. (1993). Managerial style and health promotion programs. *Social Science & Medicine*, 36 (3), 227-238.

World Health Organization. (1987). Ottawa Charter for Health Promotion. The First International Conference on Health Promotion. *Health Promotion*, 1 (4), iii-v.

World Health Organization. (1998). *The Jakarta Declaration on Leading Health Promotion into the 21st Century: Fourth International Conference on Health Promotion.* WHO: Author

World Health Organization. (2002). *The World Health Report 2002*. Retrieved November 2, 2002 from: http://www.who.int/whr/2002/en/

World Health Organization, Coronary Prevention Group. (1992). *Prevention of Cardiovascular Disease – Recommendations for National Governments.* Technical report.

Yukl, G. (1998). *Leadership in Organizations*. (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Yukl, G. (1999). An evaluative essay on current conceptions of effective leadership. *European Journal of Work and Organizational Psychology*, 8 (1), 33-48.

Yukl, G. & Van Fleet, D. (1992). Theory and research on leadership in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (pp. 147 –197). Palo Alto, CA: Consulting Psychologists Press.

APPENDIX IV

RESEARCH ETHICS APPROVAL

Health Research Ethics Board

biomedical research
2J2.11 Walter Mackenzie Centre
University of Alberta, Edmonton, Alberta T6C 2R7
p.780.492.9724 f.780.492.7303
ethics@med.ualberta.ca

health research
3-48 Corbett Hall, University of Alberta
Edmonton, Alberta T6C 2C4
p.780.492.0839 f.780.492.1626
ethics@rehab.ualberta.ca

July 9, 1999

Dr. Kim Raine-Travers
5-10 University Extension Centre
Centre for Health Promotion Studies

Dear Dr. Raine-Travers,

Re: Heart Health Promotion Knowledge Transfer and Uptake: An Examination of Organizational Capacity Building and Its Impact on Health Promotion Actions.

Please find enclosed your letter of ethical approval for the above study. On behalf of the Health Research Ethics Board (B: Health Research), I wish you every success in your research endeavours.

Sincerely,

Karen Turpin

Karen Turpin, RN, BScN
Administrative Assistant
Health Research Ethics Board (B: Health Research)

University of Alberta
Capital Health
CARITAS HEALTH GROUP

Health Research Ethics Board

biomedical research
212.11 Walter Mackenzie Centre
University of Alberta, Edmonton, Alberta T6G 2R7
p.780.492.9724 f.780.492.7303
ethics@med.ualberta.ca

health research
3-48 Corbett Hall, University of Alberta
Edmonton, Alberta T6G 2G4
p.780.492.0839 f.780.492.1626
ethics@rehab.ualberta.ca

UNIVERSITY OF ALBERTA HEALTH SCIENCES FACULTIES,
CAPITAL HEALTH AUTHORITY, AND CARITAS HEALTH GROUP

HEALTH RESEARCH ETHICS APPROVAL

Date:	July 1999
Name(s) of Principal Investigator(s):	Dr. Kim Raine-Travers
Organization(s):	University of Alberta
Department:	Centre for Health Promotion Studies
Project Title:	Heart Health Promotion Knowledge Transfer and Uptake: An Examination of Organizational Capacity Building and Its Impact on Health Promotion Actions

The Health Research Ethics Board has reviewed the protocol for this project and found it to be acceptable within the limitations of human experimentation. The HREB has also reviewed and approved the patient information material and consent form.

The approval for the study as presented is valid for one year. It may be extended following completion of the yearly report form. Any proposed changes to the study must be submitted to the Health Research Ethics Board for approval.

Sharon Warren

Dr. Sharon Warren
Chair of the Health Research Ethics Board (B: Health Research)

File number: B-100699-HPS

University of Alberta

Capital Health

CARITAS HEALTH GROUP

APPENDIX V

SCALE ITEMS OF THE BASELINE

AHHP ORGANIZATIONAL CAPACITY SURVEY

USED IN THIS STUDY

APPENDIX V

V.1 Scale Items of the Baseline *AHHP Organizational Capacity Survey*

The attached provides all scales from the baseline AHHP Organizational Capacity Survey (including the original page number, referenced below) used to measure the dependent and independent variables examined in this study on organizational leadership for health promotion. It is important to note that only those responses pertaining to the assessment of the organization's active involvement with the item within the last 12 months were used (i.e., respondent data from those response-columns that focus on the past 12 months). Specific instructions to the respondents in the survey included:

> *Unless otherwise specified, the "we" and "our" in the questions refers to the organization you work for. Organization is defined as the whole organization and not only your division, department, etc.*

V.2 Dependent Variables

B – Organizational Participation in:

- Scale 2-Column 2: Ottawa Charter Action Strategies (survey p. 5)
- Scale 3-Column 3: Heart Health (HH) Risk Factors & Conditions (survey p. 6)
- Scale 4-Column 2: HH Behavourial Risk Factors in Settings (survey p. 7)

C – Organizational Activities for:

- Scale 1 – Column 2: Health Promotion Assessment (survey p. 8)
- Scale 2 – Column 2: Heart Promotion Planning (survey p. 9)
- Scale 3 – Column 2: Health Promotion Implementation (survey p. 10)
- Scale 4 – Column 2: Health Promotion Evaluation (survey p. 11)

V.3 Independent Variables

Organizational Leadership for Health Promotion

- E: Organizational Practices (survey p. 14-15)
- F: Capacity for Organizational Learning (survey p. 16)

Champion for Heart Health Promotion – question G 3a (survey p. 17)

Gender, Age, Organizational Level (survey p. 20)

2. The following table lists five types of action strategies that characterize health promotion. Together, these actions can directly influence the health of populations, or indirectly affect health by providing essential resources like knowledge and skills to individuals and communities.

- *In column one,* please indicate your estimation of your organization's current level of knowledge for each strategy.
- *In column two,* please indicate the extent to which your organization has been actively involved with each strategy during the past twelve months.

	Column 1 Current level of knowledge					***Column 2*** Extent to which your organization has been actively involved during the past 12 months				
	None	A little	Some	Quite a bit	A lot	Never	Seldom	Occasionally	Often	Regularly
a) Building healthy public policy *(Implies that all policy makers take into account the potential impact of the policy on the health and equity of individuals and the population (WHO, 1998)).*	1	2	3	4	5	1	2	3	4	5
b) Creating supportive environments *(Supportive environments for health offer people protection from threats to health, and enable people to expand their capabilities and develop self-reliance in health (WHO, 1998)).*	1	2	3	4	5	1	2	3	4	5
c) Strengthening community action *(Strengthening community action involves a collective effort of a group of individuals to increase control over the determinants of health (WHO, 1998)).*	1	2	3	4	5	1	2	3	4	5
d) Developing personal skills *(Developing skills which allow people to better control and direct their lives in addition to enhancing their capacity to live in or change their environment (WHO, 1998)).*	1	2	3	4	5	1	2	3	4	5
e) Reorienting health services *(Reorienting health services involves moving in a health promotion direction and moving beyond the traditional provision of clinical and curative services (WHO, 1998)).*	1	2	3	4	5	1	2	3	4	5

3. Organizations serve populations with different needs and concerns. Considering the structure of your organization and the needs or concerns the population your organization serves.

- *In column one,* please indicate how strongly you believe your organization should address each of the following factors.
- *In column two,* please indicate how capable you would say your organization is in addressing each of these determinants of health.
- *In column three,* please indicate your organization's level of involvement with each of these factors during the past twelve months.

	Column 1 We believe we should actively address					Column 2 We are capable of addressing					Column 3 Level of involvement with each factor during the past 12 months				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Physiological Factors															
a) High blood pressure	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) High blood cholesterol	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c) Obesity	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
d) Genetic factors	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Behavioral Factors															
a) Smoking	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) Poor diet	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c) Physical inactivity	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Psychosocial Risk Factors															
a) Lack of social support	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) Stress	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) Low self-esteem	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c) Low socio-economic status *(education, occupation, income)*	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Environmental Risk Conditions															
a) Poverty	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) Poor work conditions	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c) Discrimination *(sexism, ageism, racism, etc.)*	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
d) Large gaps in income between the wealthiest and the poorest within a community, region, or province	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

4. The following four questions relate to participation in various activities, and refer to participation alone or in partnership with others. As before, for each statement, please rate your organization in three different ways.

- *In column one,* indicate your organization's level of ability to conduct these activities.
- *In column two,* indicate your organization's level of involvement in these activities during the past twelve months.
- *In column three,* please rate the desired level of involvement over the next two years for each activity. (*By desired, we mean the level of involvement you would be satisfied with for your organization*).

	Column 1 Our level of ability to conduct these activities					Column 2 Our current level of involvement in these activities during the past 12 months					Column 3 Our desired level of involvement over the next 2 years				
1. Participate in tobacco reduction related activities															
a) in schools	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) in workplaces	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c) in health care settings	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
d) in the community at large	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Other (list) ____	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
____	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
____	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
2. Participate in nutrition related activities															
a) in restaurants	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) in grocery stores	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c) in schools	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
d) in workplaces	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
e) in health care settings	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
f) in the community at large	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Other (list) ____	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
____	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
____	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
3. Participate in physical activity related activities															
a) in schools	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) in workplaces	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c) in health care settings	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
d) in the community at large	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Other (list) ____	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
____	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
____	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
4. Participate in other heart health activities Please list															
a)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

C: ASSESSMENT, PLANNING, IMPLEMENTATION, AND EVALUATION

Organizations vary in how they approach the assessment, planning, implementation, and evaluation of health promotion activities. The following series of statements describe things that an organization might do.

Assessment Activities

1. For each of the following statements about assessment, please rate your organization in three different ways:

- *In column one,* indicate your organization's level of ability to conduct these activities.
- *In column two,* indicate your organization's level of involvement in these activities during the past twelve months.
- *In column three,* please rate the desired level of involvement for each activity in the next two years. (*By desired, we mean the level of involvement you would be satisfied with for your organization*).

	Column 1 Our level of ability to conduct these activities					Column 2 Our involvement in these activities during the past 12 months					Column 3 Our desired level of involvement in these activities in the next 2 years				
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
a) Assess factors that affect health *(such as social support, working conditions, poverty).*	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) Provide opportunities for community input on health [illegible]	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c) Review research material to assist in developing health promotion priorities.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
d) Assess organizational strengths and limitations to do health promotion activities.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
e) Assess community resources and initiatives that would influence our health promotion activities.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
f) Review the research on heart health.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
g) Review heart health activities developed elsewhere that might be adopted or adapted for use in our organization.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
h) Carry out other health promotion assessment activities. Please list: ______	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
______	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
______	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Planning Activites

2. For each planning activity, please rate your organization in three different ways:

- *In column one,* indicate your organization's level of ability to conduct these activities.
- *In column two,* indicate your organization's level of involvement in these activities during the past twelve months.
- *In column three,* please rate the desired level of involvement for each activity in the next two years. (*By desired, we mean the level of involvement you would be satisfied with for your organization*).

	Column 1 Our level of ability in these activities					***Column 2*** Our involvement in these activities during the past 12 months					***Column 3*** Our desired level of involvement these activities in the next 2 years				
	Poor	Fair	Average	Good	Excellent	None	Seldom	Occasionally	Often	Regularly	None	Seldom	Occasionally	Often	Regularly
a) Engage in a strategic planning process to set priorites for health promotion.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) Set goals and objectives for health promotion initiatives.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c) Link objectives to strategy or activities.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
d) Gather health promotion resources and materials.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
e) Develop action plans for health promotion.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
f) Identify possible partners in health promotion.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
g) Consider long-term sustainability of health promotion initiatives.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
h) Plan for evaluation of health promotion initiatives (e.g. name indicators, how we will measure and document results).	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
i) Discuss ways of sharing and disseminating health promotion knowledge/learning.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
j) Develop action plans for [illegible] health promotion.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
k) Carry out other health promotion planning activites. Please list ________________	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
________________	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
________________	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Implementation Activites

3. For each implementation activity, please rate your organization in three different ways:

- *In column one,* indicate your organization's level of ability to conduct these activities.
- *In column two,* indicate your organization's level of involvement in these activities during the past twelve months.
- *In column three,* please rate the desired level of involvement for each activity in the next two years. (*By desired, we mean the level of involvement you would be satisfied with for your organization*).

	Column 1					Column 2					Column 3				
	Our level of ability to conduct these activities					Our involvement in these activities during the past 12 months					Our desired level of involvement in these activities in the next 2 years				
	Poor	Fair	Average	Good	Excellent	None	Seldom	Occasionally	Often	Regularly	None	Seldom	Occasionally	Often	Regularly
a) Partner with other organizations to conduct health promotion activites.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) Promote health through the media.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c) Engage in activities to encourage health promotion as a priority among diverse health professionals.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
d) Engage in activities to encourage health promotion as a priority among politicians and community leaders.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
e) Work towards healthy public policy within the organization.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
f) Work toward healthy public policy in local and/or provincial governments.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
g) Help people mobilize to influence healthy public policy.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
h) Participate in coalitions or networks related to health promotion.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
i) Involve volunteers from the community to assist with health promotion activities.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
j) Facilitate community support groups.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
k) Provide health promotion training opportunities for employees within our organization.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
l) Provide health promotion training opportunities for people outside of our organization (e.g. non-governmental organizations).	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
m) Carry out other health promotion implementation activities. Please list ________________	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
________________	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
________________	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Evaluation activites

4. For each statement, please rate your organization in three different ways:

- *In column one,* indicate your organization's level of ability to conduct these activities.
- *In column two,* indicate your organization's level of involvement in these activities during the past twelve months.
- *In column three,* please rate the desired level of involvement for each activity in the next two years. (*By desired, we mean the level of involvement you would be satisfied with for your organization*).

	Column 1 Our level of ability to conduct these activities					*Column 2* Our involvement in these activities during the past 12 months					*Column 3* Our desired level of involvement in these activities in the next 2 yea				
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
a) Evaluate our health promotion initiatives.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
b) Assess progress toward our health promotion goals and objectives.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
c) Measure or document changes related to our health promotion initiatives (e.g. knowledge, skills, behavior).	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
d) Assess process of implementing initiatives.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
e) Assess the impact of our health promotion initiatives on communities.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
f) Use evaluation process to improve evaluation skills.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
g) Use our evaluation findings to improve our health promotion initiatives.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
h) Reflect collectively on the way in which our organization approaches health promotion.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
i) Share our health promotion evaluation findings with colleagues throughout the organization.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
j) Share our health promotion evaluation findings with colleagues provincially.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
k) Share our health promotion evaluation findings with colleagues nationally.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
l) Other health promotion evaluation activities. Please specify:															
____________________	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
____________________	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
____________________	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

E: ORGANIZATIONAL PRACTICES

1. This question is about organizational practices.

- *In column one,* please indicate the extent to which each statement currently represents your organization.

	To what extent to each of the following statements currently represent your organization?				
	Not at all	Little	Somewhat	[illegible]	Completely
1. Our work is consistent with our organizational values	1	2	3	4	5
2. The vision is continually updated based on changes in the environment.	1	2	3	4	5
3. The vision is based on our collective efforts.	1	2	3	4	5
4. Employees take into account the vision and strategies of the organization as they plan and execute their work.	1	2	3	4	5
5. Leaders are characterized by a responsive and accessible style.	1	2	3	4	5
6. Processes are in place for the Board to engage in self-evaluation.	1	2	3	4	5
7. We have a good idea of where we want to	1	2	3	4	5
8. We devote adequate time to long range planning.	1	2	3	4	5
9. Processes are in place for group decision-making.	1	2	3	4	5
10. Processes are in place for evaluating past decisions.	1	2	3	4	5
11. We are always looking for ways to do things better.	1	2	3	4	5
12. We have a broad concept of "information" (including quantitative, qualitative, external expert, and experiential input).	1	2	3	4	5
13. We are quick to change to meet challenges in our environment.	1	2	3	4	5
14. Policies, programs and budgets reflect the values and principles of the wellness model.	1	2	3	4	5
15. Honesty and trustworthiness characterize our relationships.	1	2	3	4	5
16. We have well understood expectations and strategies for how we communicate, internally and externally.	1	2	3	4	5

	To What extent do each of the following [illegible] organization?				
	Not at all	A little	Somewhat	A lot	Completely
17. We examine the potential or actual effect of our programs and policies on different groups within the general population *(e.g. gender, culture, socio-economic status, age).*	1	2	3	4	5
18. It is easy to get timely information about issues, activities and processes that affect how we do our work.	1	2	3	4	5
19. We openly share information and resources among staff members and departments.	1	2	3	4	5
20. We are successful in resolving conflicts.	1	2	3	4	5
21. In conflict situations, we are encouraged to openly and honestly discuss the issues.	1	2	3	4	5
22. Opportunities are provided for individuals to develop personally and professionally.	1	2	3	4	5
23. We have professional development policies.	1	2	3	4	5
24. Professional development efforts are sufficient to meet staff needs.	1	2	3	4	5
25. People care about one another.	1	2	3	4	5
26. We are encouraged to critically reflect on our work.	1	2	3	4	5
27. Management utilizes on clear policies and close monitoring and control of activities.	1	2	3	4	5
28. We seek leadership from all levels of the organization.	1	2	3	4	5

F. CAPACITY FOR ORGANIZATIONAL LEARNING

1. Rate the organization you are working with on each item. This question requires you to consider and report on the practices of the organization overall.

- Please rate your organization according to the extent to which each statement currently represents your organization.

	Current level of agreement				
	Not at all	A little	Somewhat	[illegible]	Completely
1. This organization has participative policy-making. *(e.g. People working at various levels in the organization have an opportunity to take part in the decisions that affect them and the organization).*	1	2	3	4	5
2. This organization has [illegible] information systems. *(e.g. People have easy access to the major developments across the organization and the purpose of any changes or decisions are made clear).*	1	2	3	4	5
3. This organization has mutual adjustments between departments. *(e.g. Different parts of the organization expand, adjust, and accommodate to fit the circumstances of another, such as temporary arrangements to share scarce administrative support).*	1	2	3	4	5
4. This organization [illegible] a variety of innovative and broad activities. *(e.g. People are rewarded for investing effort in [illegible])*	1	2	3	4	5
5. This organization engages in inter-organizational learning. *(e.g. The organization participates in a broader network of similar organizations and acts in concert with these to mutual advantage).*	1	2	3	4	5
6. This organization has a learning culture and climate. *(e.g. Innovation and experimentation are [illegible])*	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

G. LEVEL OF INSTITUTIONALIZATION

The next series of questions ask about health promotion and heart health promotion resources and activities within your organization.

An example of heart health promotion would be working with the community to reduce tobacco use, improve "heart" healthy diet, and increase physical activity opportunities.

1. Within your organization would you say *heart health* promotion is a:

☐ Low priority ☐ Medium priority ☐ High priority ☐ Don't know

2. Compared to one year ago, would you say the priority given to *heart health* promotion within your organizations has:

☐ Decreased ☐ Stayed the same ☐ Increased ☐ Don't know

3a. Is there a champion for the *heart health* promotion program, this means someone who is very involved in sustaining the *heart health* promotion program?

☐ No ☐ Don't know ☐ Yes →→ b) Do you think you are this person?

☐ Yes →→ go to question 4a
☐ No

c) Does this person work in your organization?

☐ Yes
☐ No →→ go to question 4a

d) What is their role in the organization?

☐ Board
☐ Management
☐ Health Promotion/ Population Health/ Public Health Practitioner
☐ Other (please specify)____________________
☐ Don't know

4a How many full-time heart health promotion and/or health promotion positions exist in your organization?

____

H: WANTS/NEEDS

Here's your chance to tell us what you think your organization needs most, to strengthen and support it's health promotion work.

In the chart please list needs or wants in descending order of importance, where "1" is the most important.

Wants/Needs
1.
2.
3.
4.
5.
6.
7.

I: A BIT ABOUT YOU

This section asks for some basic information about you.

1. I am...
   ☐ Female ☐ Male

2. I am...
   - ☐ 20-29 years
   - ☐ 30-39 years
   - ☐ 40-49 years
   - ☐ 50-59 years
   - ☐ 60-69 years

3. Please indicate which category your current position falls into.
   - ☐ Board Member
   - ☐ Management
   - ☐ Health Promotion/ Population Health/ Public Health Practitioner
   - ☐ Other (please specify) ______________________

THANK YOU! ♥

This questionnaire was adapted from research material from:

CHHIOP (Canadian Heart Health Initiative Ontario Project)
HHNS (Heart Health Nova Scotia)
SHHP (Saskatchewan Heart Health Project)
PQDSC (Projet Québécois de Dissémination en Santé du Coeur)
BCHHP (British Columbia Heart Health Project).

The Alberta Heart Health Project acknowledges all of the above for their willingness to share their work.